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AREA ECONOMIC SURVEY


AND

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CA1, IA 41
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report


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INDUSTRIAL
DIVISION
DEPARTMENT
OF
NORTHERN
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RESOURCES

D.M. BRACK - D. McINTOSH

MARCH 1963



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KEEWATIN MAINLAND

AREA ECONOMIC SURVEY

and

REGIONAL APPRAISAL

D.M. BRACK
D. McINTOSH

NORTHERN AREA SURVEY OFFICERS

Projects Section,
Industrial Division,
Department of Northern
Affairs and National
Resources, Ottawa.
March, 1963.

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FOREWORD

by

Donald Snowden
Chief of the Industrial Division
Department of Northern Affairs
and National Resources

This represents the first survey of its kind ever undertaken in the Keewatin region of northern Canada. The report deals with the mainland Keewatin region of Arctic Canada, which runs north of Manitoba along the west coast of Hudson Bay and far into the interior. This and similar surveys are part of the responsibility of the Area Surveys and Projects Section of this Division.

The basic purpose of such surveys is to examine the human and renewable resources of the Arctic regions of Canada and the sub-Arctic areas in the Northwest Territories. Survey officers are required to carry out extensive field work for prolonged periods each year, often in extremely isolated areas, sometimes under hazardous conditions. The findings of their field work, supplemented by all available pertinent information from other sources, form the basis for proposed programs of area development which it is incumbent upon the survey officer to recommend in detail. This is an extremely heavy responsibility, for the recommendations of the survey officer can have a deep and lasting effect on the lives of many of our northern citizens. Wrong recommendations, based on inaccurate or incomplete information or upon incorrect interpretation of data, can lead to the development of local economic development programs which, under these circumstances, would be doomed to failure from the start.

Following completion of area survey reports, usually at the end of the year in which the field work has been completed, careful studies are made of the recommendations. Those accepted as feasible enter the stage of project planning, where equipment and supplies for local economic development projects are ordered, purchased, and shipped into the north. Often, new types of equipment have to be designed prior to the time a development program begins, to meet the peculiar needs of economic development projects in the Arctic. Numerous meetings are held with local Eskimo people and with Northern Affairs staff in the areas which have been surveyed, for it is our conviction that involvement of local people, right from the start, is critical to the success of any planned program.

One of our very real regrets is that an area survey officer who has had the heavy responsibility of recommending the future development of local projects and other forms of self-help programs for northern peoples in areas in which he has carried out his investigations may never see the results of his work. The actual physical implementation of these programs is undertaken by other technical specialists, called Projects Officers, who move into an Arctic area after the survey has been completed.

At the present rate of area survey work, it will be at least 20 years before even a satisfactory minimum amount of research such as is embodied in this report will have been carried out across the Northwest Territories. Today, only four area survey officers are doing this work full time, and the area they have to cover extends over a million square miles of the most remote part of Canada. It is our belief that this type of research program must be accelerated, and that all agencies which can contribute to our knowledge of how the resources of the north can be efficiently used by the people of the north must be encouraged to participate even more vigorously in this program. We believe that perhaps the most desperate need in the Canadian Arctic today is for vastly accelerated programs of investigation into the renewable resources of that area, particularly the resources of the sea. Already there are important indications that our failure to carry out this essential research soon can result in a growing segment of the Arctic's population having to depend heavily on various forms of social assistance, particularly direct relief. One of the most disturbing aspects of the Arctic today is that many employable persons have no opportunity for regular productive work, yet renewable resource research carried out so far points to the fact that a significantly larger proportion of the Arctic's population can gain a livelihood from its resources than are doing so now.

This is true even of the Keewatin, the region surveyed in this report. The Keewatin is an area unique in Canada, probably unique in the world. It has been aptly described as the Land of the Desperate People.

This report represents the end of two years of intensive research in the Keewatin. It offers evidence that, in this huge area of the Arctic, the people of Canada must face a problem unlike any other they have faced before, perhaps different to any they will face again in this country. The fact is that the Keewatin region of the Northwest Territories cannot support its present population, and will not be able to support all its fast-growing population at any time in the foreseeable future, unless there is heavy and constant Federal Government subsidy in the form of direct relief or make-work programs. There are no immediate prospects for mineral development in the region, and, even if there were, I do not believe that mining alone will ever absorb the rapidly increasing Eskimo population of the Keewatin District.

The Keewatin today is an area of anomalies. Eskimo people in some parts of Keewatin are concentrated in settlements located where the resources can support only a small fraction of the population. For most of these people there is no hope of productive employment in the area they know as their land. In other parts of the Keewatin District, the sea and inland water resources are being scarcely touched. In some of these places, more Eskimo people could live on the resources of the country.

In spite of this, the results of this survey of the human and renewable resources of Keewatin indicate that there is a growing imbalance between the resources which are in the sea, in the inland waters and on the land, and a rapidly growing population. Today, much of Keewatin exists on direct relief, and for many of the people living in this region there are no prospects of productive, unsubsidized employment. For these people, there are only two alternatives: to continue to live on social assistance, or to move elsewhere. For some, this will probably mean moving entirely away from the Keewatin region, perhaps to other parts of the Arctic which are far more abundant in resources.

Fortunately, Keewatin represents the extreme picture in the Canadian Arctic. It is, in many ways, the most desolate region of the Arctic. Other areas are known to have rich resources in the sea which offer interesting possibilities for substantial commercial development by the people of the north. Other parts of the Arctic, not yet adequately surveyed, may well be even more rich in resources. Only continued and intensified research can prove the ability of the Arctic to support its population.

We are most grateful for the dynamic, serious, and conscientious work done by those engaged in this type of research in the Arctic, and we have been especially encouraged by the help and co-operation extended to us by many research agencies, especially by the Fisheries Research Board and the Canadian Wildlife Service. Their work will play an important part in the development and expansion of an Arctic economy by Canada's Arctic peoples. Among these persons are area survey officers, who travel a work path which they must make for themselves, for we have almost no precedents in our own country to offer them in this type of thoroughly diversified research.

We would be less than just if Mr. Brack, the area survey officer who is the author of this report, were not singled out for special commendation. Parts of this report contain new and important concepts of the efficient use of the Arctic's resources. The author has tackled his work with imagination, with diligence, and with scientific honesty. He has, as an area survey officer, had to draw certain conclusions which only time can substantiate. We believe these conclusions are sound.

Finally, we must acknowledge with extreme gratitude the support given to us by the people of the Keewatin, and especially the officers of this Department who live there and who are charged with a responsibility which is, in a way, more difficult than that faced by

others in the Arctic whose work is also with the people of the north. For the Northern Affairs officer in the Keewatin there is no easy or apparent solution to the severe social and economic problems of the people he serves.

It is not, perhaps, difficult to live with success, in the Arctic or elsewhere. Some of us have had the satisfaction of seeing other parts of the north change from areas of considerable social and economic depression to vigorous and dynamic communities, where the people are learning to use their land in a new way.

The Northern Affairs officers who live and work with the people of the Keewatin have no promise and little hope that tomorrow will bring an opportunity for work and self-dependence for all the Eskimo people of that region. If the problem does not seem to be capable of immediate solution, it is no reflection on them; we have been impressed with the serious and constant concern they show for the future of the Eskimo people with whom they live. The problem of Keewatin is one Canada may not yet know how to deal with, for we have not experienced one quite like it before.

In any event, we hope this report will be of some assistance to the Northern Affairs staff in the Keewatin in the work they are doing, and that it may point the way to remedial measures which, if they cannot be applied for all the people of the Keewatin District, may add a measure of opportunity for productivity, security, and a promising future for some of the Eskimo people of this most desperately depressed region of Canada.

PREFACE

This report contains the findings and deliberations of one of a series of Area Economic Surveys undertaken by the Industrial Division of the Department of Northern Affairs and National Resources.

These surveys are a continuing part of the Department's efforts to determine the basis for local economic and social progress in the northern areas. Basically, the surveys are intended to:

- (1) assess the renewable resources as to their ability to sustain the local population.
- (2) to determine the degree of exploitation of these resources and the efficiency of their use.
- (3) investigate and explain the social and economic factors affecting resource utilization.
- (4) recommend ways and means whereby the standard of living of the local people may be improved.

As the reasons for these surveys are practical, the material presented in the reports is selected for its relevance in this respect; much academic material gathered in the course of the investigation which may be taken into account in the deliberations is necessarily excluded in the reports.

The report is published in its present form primarily for use within the Department, for distribution to other interested Government agencies, and for limited distribution to universities, organizations and individuals actively interested in northern affairs.

Acknowledgements

It would be impossible for the authors of this Report to mention by name all those who have contributed to or discussed its contents in the course of its preparation.

During the field work information and co-operation was received from clergymen of all the missions, Hudson's Bay Company staff, members of the Royal Canadian Mounted Police, Department of Transport personnel, and staff of the Department of Northern Affairs and National Resources. To all these individuals we extend our sincere thanks.

In every community Eskimos spent many hours discussing resources with the Survey Officers, poring over maps, and patiently answering questions. Without them there would be no Report.

Similar co-operation has been received from colleagues and others in Ottawa. At least one member of each Division in the Administration Branch has helped by providing or collecting information, or by discussing specific aspects of the study.

We are particularly grateful to the staff of the Arctic Unit of the Fisheries Research Board of Canada for their comments on the findings of the Survey with regard to fish and marine mammals.

Mr. Jon Evans of the Industrial Division read practically the whole draft, and throughout the work has been a most helpful and valuable colleague.

The cost of publishing the Report in its present form has been borne by the Northern Co-ordination and Research Centre of the Department of Northern Affairs and National Resources.

Scope of Report and Survey

The spatial scope of this report is twofold:

(1) The greater part of the Report concerns the area studied by the Keewatin Mainland Area Economic Survey^{*} carried out during the summer of 1962. This survey included the settlements of Baker Lake, Chesterfield Inlet, Rankin Inlet, Whale Cove, and Eskimo Point, the areas tributary to these settlements, and other areas which have been abandoned or are unpopulated at the present time.

(2) A minor, but perhaps more important part, is concerned with a more regional view and incorporates results of the Southampton Island Area Economic Survey carried out in the summer of 1961. In a very real sense this report and the Southampton Report are supplementary and complementary.

Fig. 1 shows the general areas considered by each survey. The combined areas represent what is described in this report as the "Keewatin Region". The area of this report is generally referred to as "mainland Keewatin" to distinguish it from the area of the Southampton Survey. The Keewatin District is an administrative definition of an area extending beyond what is here called the Keewatin Region.

The field work of the survey started on July 11 when the two survey officers arrived at Rankin. D. Brack the senior officer, who conducted the Southampton Island Survey, worked in the region for the following month and visited Baker Lake, Rankin and Whale Cove. D. McIntosh left Rankin on July 27 by peterhead and in the course of the survey travelled 1,255 miles along the coast from Kamarvik Harbour in the north to Whale Cove in the south, with a side trip up Chesterfield Inlet to Barbour Bay. Mr. McIntosh received a back injury while at Whale Cove, was flown out to hospital in Churchill, and was able to return north to Eskimo Point for only a few days.

In his work Mr. McIntosh was ably assisted by Mr. P. Gillespie of the Indian Eskimo Association.

The peterhead used by the Survey was rented from Mr. Joe Curley of Coral Harbour who piloted the boat and provided the crew.

During the survey the officers talked with Eskimos and other local people about the country's resources, the use made of them, and the factors affecting this use. They also carried out test netting for fish and marine mammals, and made general wildlife observations.

* The Survey was originally called the "Rankin Inlet" survey - a misleading title.



Fig. 1

Organization

The subject matter of the report is divided in four parts:

- I Introduction. In this part we discuss the salient features of the population movements and present economy relevant to the subsequent study. This part includes brief, but essential reference to recent periods of distress and hardship in the region, and the change from camp-based to settlement-based living.
- II The second part comprises a discussion of the general availability of the major renewable resources, and the factors affecting their exploitation. This part of the study closes with a quantitative assessment of the subsistence basis of the region. The use of this assessment is important in Part III.
- III This part contains a review of the present settlements and their tributary areas, their attributes, populations, local economics and resource utilization, and immediate prospects. The quantitative assessment derived in the Part II is applied, with appropriate modifications and qualifications, to each settlement and used as a guide to indicate what measures would seem to be most likely to improve the general conditions within the settlement. In this part we also take account of the regional aspects of both the Rankin and Southampton Area Survey.
- IV The final part is concerned with a more long range view of the implications of population growth in the region. A brief discussion is included on the possibilities of establishing industry within the region.

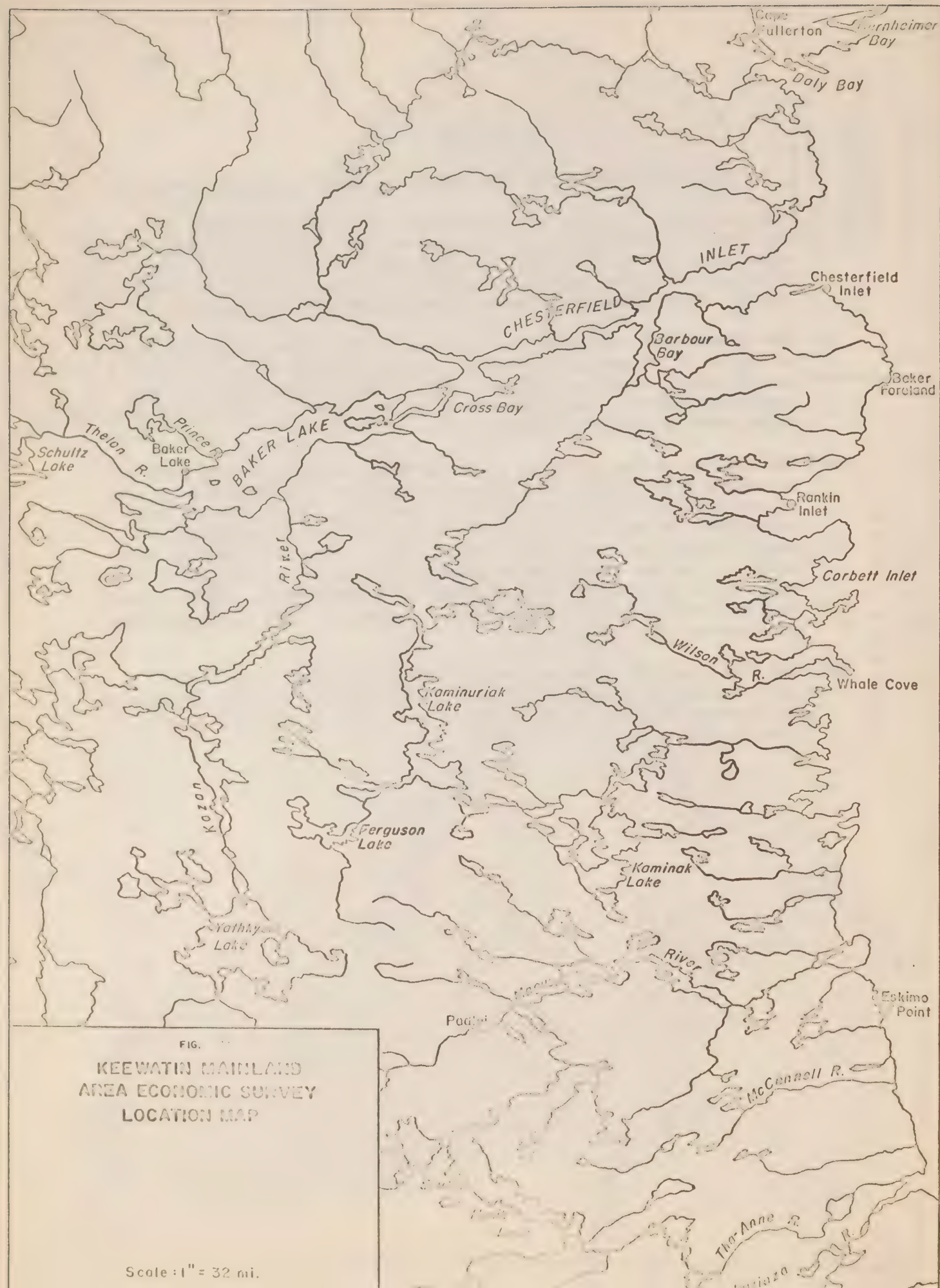


FIG. 1.

KEEWATIN MAINLAND
AREA ECONOMIC SURVEY
LOCATION MAP

Scale: 1" = 32 mi.

I INTRODUCTION

1. General Physical Geography

Physiography

The landscape of the Keewatin region is one of low relief laced by streams and lakes with occasional ranges of low hills rising to 300 - 600 feet. From the Wager uplands which form the south coast of Wager Bay, the land drops gently down to sea level at Chesterfield Inlet. To the west and south of Chesterfield lies an extensive plain which rises very gradually from the great depression of Hudson Bay. Underlying rocks are mainly grey or light red granite or granite gneis. Between Rankin Inlet and Dawson Inlet there are crystalline schists and lavas with quartzite which extend inland to the vicinity of the Kazan River. Just outside Rankin Inlet lies Marble Island named for its light coloured appearance due to its quartzite composition.

On the surface, outcrops are numerous and the cover is mainly glacial debris comprising angular rock fragments, drumlinized till, and marine deposits.

Drainage is poorly integrated. The Thelon River which empties into Baker Lake drains most of the country to the west between the Back River and the tree-line and flows in a relatively well defined channel. The other rivers drain mainly into Hudson Bay and flow in shallow poorly defined channels linking many water bodies. A myriad lakes of all shapes and sizes characterize the landscape. The largest are Garry Lake, 980 square miles, Baker Lake 975, Yathkyed 860, and Maguse 510. These all occupy rock basins with many indentations and arms. South of Chesterfield the lakes have a general northwest orientation. There are many swampy depressions with mosses, sedges and lichens.

The coast changes in character markedly from north to south. North of Chesterfield, many bays, inlets, and indentations are common with relatively deep water close inshore. From Chesterfield to the south, the indented coast continues with bolder embayments such as Rankin Inlet and Dawson Inlet, but reefs and rocks become more numerous and tidal flats more common. The Churchill coastal plain occupies the area from about Rankin Inlet to Cape Churchill. South from Rankin Inlet the coast gradually evens out until, past Eskimo Point, it becomes low and featureless with extensive tidal flats and almost no fringing islands.

The character of the coast has a bearing on the availability of marine mammals. In the south, whales frequent the shallow mouths of the larger rivers during the summertime. Northward, the indented coast favours the seal hunter at most times of the year. From the map, it will be seen that Chesterfield has, within a 50-mile radius, a larger coastal area than any of the other settlements in the area - a fact of great importance to Chesterfield as a home of seal hunting people.

While navigation of the coast requires a knowledgeable pilot, hazards in the form of rocks, reefs, and shoals, are greater in the southern stretches of coast than in the north. The southern coast also has less shelter in case of storm than farther north, especially north of Chesterfield. Small boats travelling to Repulse (a relatively rare trip) usually hug the west coast of Roes Welcome Sound.

Climate

The Barren Grounds are characterized particularly by their cool summers. The mean daily temperature in July and August is 50° F or lower, although absolute temperatures of over 80° have been recorded at Baker Lake, Chesterfield, and Ennadai Lake. For the same three stations the June, July, August and September absolute minimum temperatures are usually 10 or more degrees above zero. In January the mean daily temperature at Baker Lake is about -30°F. At Chesterfield absolute minimum temperatures of -60°F have been recorded for January and February. The range of both mean and extreme (139° at Baker Lake) values for the region as a whole is among the largest on the continent.

Keewatin has a dry climate, both summer rain and winter snow being light and infrequent. From May to October humidities are appreciable, over 90% having been recorded at Chesterfield in July. The daily fluctuations are, however, quite wide. While summer rain is light it is appreciable in most areas, ranging from about 4" to 7" for the season. Total precipitation tends to be higher along the coast than farther inland. Winter humidity is almost vanishingly low due to the poor moisture holding capacity of the extremely cold air. Snowfall varies from about 50" to 60" on the coast to less than 30" far inland. First snowfall usually comes about the end of August or the beginning of September and falls are heavy during October and November. By June the snow has normally given way to rain.

High winds which typify the Keewatin winters give rise to blowing and drifting snow. Furthermore, they tend to blow the snow off smooth rock plains and concentrate it in depressions and rougher terrain. The average January windspeed at Chesterfield (15 m.p.h.) is strong enough to raise blowing snow above buildings and radio masts. From October onwards blowing snow is probably the greatest single obstacle to airborne and overland movement. In extremely low temperatures snow becomes sticky, and if none has fallen for a prolonged period, that which is lying on the ground acquires a hard wind-blown crust, thus reducing the incidence of blown snow.

The bitter cold that accompanies the winter winds can cause severe physiological stress. The windchill values are high: over 1800 kcal/hr/m² have been calculated for Keewatin in January and February, and over 2000 kcal/hr/m² were calculated during Exercise Musk-Ox.

Ice Conditions

The dates of break-up and freeze-up for both lakes and coastal waters vary widely from year to year. Generally speaking, ice begins to form on small lakes by the end of September and may be thick enough to bear a man by mid-October. Melting begins around the edges of the smallest



Photo 1 - Ice near Kamarvik Harbour, early August 1962

lakes in June and they are usually free of ice by the beginning of July. Larger lakes take longer to break up. Ice may be found in Baker Lake in August, but such ice is usually rotten and unsafe for travel. The presence of lake ice in mid-winter allows access to the settlements by ski-equipped aircraft and permits dog team travel by more direct routes.

Sea ice commences to break up around the settlements from about mid-June and the coastal waters are normally open for small boat travel any time from mid-July onwards. Freeze-up can be expected any time from mid-October, if not earlier. At Chesterfield break-up seems to be a little earlier - about the beginning of July, and freeze-up a little later - towards the end of November. While the break-up and freeze-up dates at Baker lake tend to correspond with those on the coast, it may take some time for the ice to leave the lake and free it for navigation.

For about 10-14 days during the break-up and freeze-up periods, the settlements are cut off except for radio communication. Due to the wetness of the ground and the rotten condition of the ice, air transport is impossible and sea ice prevents access along the coast.

Sea navigation is normally possible about two to three weeks after the date of break-up, but the opening of the navigation season depends on conditions in Hudson Strait and on insurance rates rather than on local ice conditions.

2. Population Shifts

An outstanding feature in the human history of the region over the last ten years has been a radical change in the settlement pattern. Whereas ten years ago the population was largely dispersed across the tundra and along the coasts in small camps containing family groups today it is concentrated in seven settlements. In Baker Lake about a dozen families are still camp-based, and in Repulse Bay most of the population is camp-based in the winter time. In the other settlements, although the hunters and trappers may range far from the settlement in the course of their daily work they regard the settlement as their base.

The main direction of the shift has been from the interior to the coast with the result that several inland areas have become depopulated. Ten years ago, about 200 people lived in the Mueltin Lake - Ennadai Lake - Padlei area, trading into the Hudson's Bay Company post at Padlei. This post was closed in 1960. In 1958, as a consequence of a winter of severe hardship which involved disease and death, many of these inland people were relocated, over 160 of them to Eskimo Point. By 1960, the southern interior of Keewatin had been abandoned.

The reasons for the general trend towards the coast are many and varied and cannot be discussed here in detail, but a brief outline of recent events in the Eskimo Point area is essential to a fuller understanding of the present situation in Keewatin.¹

In October 1955, construction work on a proposed DEW Line site at Eskimo Point was suddenly halted. During the winter, spring, and fall of 1956, construction equipment was removed from the site and Eskimos who had been employed on the job were laid off. Although the nature of the work and the reasons for the stoppage were explained to these Eskimos, it seems that they were unable to grasp the fact that there was to be no more wage work for them. They were very reluctant to return to a life of hunting and trapping after the apparent security and high earnings of the construction work. Before this situation was resolved a severe epidemic of measles occurred in the area in the fall of 1956 and continued into 1957.

The epidemic, complicated by influenza, colds, and grippe, was widespread and affected Eskimos in the inland areas. Several deaths occurred and many patients had to be evacuated to outside hospitals and sanatoria.

¹ For a detailed account of the events recounted here see: Mowat, F.; 1959

Although 1955-56 had been quite a good fox year, by the summer of 1956, most of the Eskimos had exhausted their previous winter's earnings, their morale was low, and their economic condition was declining markedly.

During the fall of 1956, about 35,000 caribou were sighted in the district, but as their migration route followed the coast, the inland Eskimos managed to set up very few caches, and the coastal Eskimos could do little hunting because of the poor state of their health. Consequently, there were few Eskimo families adequately prepared for the winter of 1957.

Contributing to their depressed condition, was the fact that those who belonged to the Caribou Eskimo groups made little effort to exploit the other food resources of the area. Small game were reported as being abundant that year but, with few exceptions, the Eskimos made little attempt to take any, and fish were largely ignored as a source of food. The Caribou Eskimos appeared to feel that without caribou, they could not hunt, trap, or live well, and they preferred to wait for the caribou rather than to fish or hunt other game. Unfortunately, the caribou did not come.

In 1957-58, almost no caribou were seen in the area. This, coupled with a low fox yield that year, reduced the people to utter destitution. During the winter of 1958, the Eskimos of Ennadai Lake began moving towards Padlei. In the stress and despair of this move, three Eskimos died of exposure and two murders were committed. The wife of one of the murdered men made a remarkable trek to Padlei during which she had to leave two of her children in a snowbank. One of the children survived to be rescued by an R.C.M.P. patrol a few days later.

By March 1958, it was reported by the R.C.M.P. at Eskimo Point that at Padlei there was:

"... a completely demoralized group of Eskimos numbering 49 men, women, and children. Of these, there were four widows with some 10 children between them, one aged widow and one woman whose husband (was) in hospital... All in all, there were 18 women and children and one aged man in this group with no one to support them. Of the remaining 30 Eskimos, there are only six men capable of providing or hunting for them."¹

These Eskimos were later moved to Eskimo Point.

¹ R.C.M.P. Report: Conditions Among Eskimos Generally, Eskimo Point Detachment, March 1958.

In the northern part of the area, a similar episode occurred. About 20 or more families used to live in the Back River - Garry Lake area. During the winter of 1958, disaster struck these people. The caribou failed to appear in sufficient numbers, a small shed in which emergency stores were kept burned down, and knowledge of the situation did not reach Baker Lake until too late. About 17 individuals died, mainly of starvation, and the remainder were evacuated to Baker Lake. Some have remained in Baker, and others have gone to other settlements.

One effect of these disasters was to leave many groups leaderless, and many children without paternal control and instruction - serious losses in view of the general nature of the Eskimo economy.

As a result of the depopulation of the interior areas, Baker Lake, Eskimo Point, and Coral Harbour¹ have grown in size. While many of the inland people have not yet adjusted to coastal living, others have done so more readily with encouraging success.

Two new settlements have come into being in Keewatin since 1955. A nickel mine started operation at Rankin Inlet in 1957. The mine company's policy of hiring as many Eskimos as possible resulted in a steady immigration of Eskimos seeking work and other opportunities. A rehabilitation and training centre was later established near the settlement by the Department of Northern Affairs as a means of helping some of those Eskimos who were in need as a result of the recent disasters. When the mine closed in 1962, over 500 Eskimos were living at Rankin. The mine, in the course of its life, had the effect of attracting Eskimos from other Keewatin settlements. Chesterfield particularly, lost a large number (over 200) to Rankin. Not all those who came to Rankin stayed. Some returned to their original settlements, and others went elsewhere for various reasons. In 1960-61, many went to Whale Cove.

Whale Cove was established in 1959 as an attempt to provide a secure base for Eskimos who wished to be self-supporting on land-based activities. This little settlement now has a population of about 140 made up of people from different Keewatin settlements.

The end result of all this is that, with the exceptions already noted, the population of Keewatin is settlement-based. And this raises an important question - can Keewatin be inhabited by settlement-based people? In essence, this is what this report is about.

There is evidence that social development will best take place in settlements where the spread and communication of ideas will take place rapidly; where education and medical facilities will be available to the most in the

¹ For the reasons for concentration of population in Coral Harbour see: Brack, D. 1962.

shortest time and in the smallest compass; where technological improvements affecting resource utilization and the benefits of public hygiene can be demonstrated to best effect. The main question is clear - can modern social development in Keewatin take place in small dispersed camps, or should larger settlements be accepted as the most favourable setting? Or is there perhaps a compromise which would include both? Whatever the answer, the organization of economic activities will be a major factor in social development if the people of Keewatin are not to lose all confidence in themselves and their country. But to what extent can the resources of the country sustain the people, and what role, beyond the merely technical and exploitative, can resource-based projects play in the wider field of total social development? These and other questions are examined in the following pages.

3. Economy

The economy of any region is based fundamentally on the satisfaction of major needs of the inhabitants, notably the needs for food, fuel, clothing, and shelter. In the satisfaction of these needs the Eskimo economy, not only in Keewatin, is characterized in its economic phases by lack of a division of labour, which means lack of exchange of goods and services within the community; and in the social phases by general lack of extra-familial organization. Any plans for the future of Keewatin must take these present characteristics into account.

If our aim is to prepare the Eskimo to take a full and informed part in the life of the Canadian nation then we may say that our aim is total social development - which would include the social organization of economic activities.

In Keewatin today, trapping, hunting, wage work, and social payments contribute to the people's sustenance in varying proportions in the different settlements. To an important degree, the family economy is self-contained and in the absence of exchange of goods and services within the community, progress within one group of people may have very little effect on the progress of others. A family with high wage earnings may not necessarily exert an upward economic influence within the community. In terms of community endeavour this is of considerable significance and will be touched upon later.

The various sources of income and earnings are as follows:

Wage Work: This is an important source of income in all the settlements, but the per capita amount varies within wide limits for several reasons. The sealift, a major element in the wage economy in most communities, contributes according to the size of the community and the number of agencies and enterprises established in it. Repulse Bay has a relatively small sealift composed almost entirely of HBC cargoes. Southampton has a large sealift involving cargoes for the Department of Northern Affairs

and National Resources, the Department of Transport, and the Hudson's Bay Company.¹ Similarly, the presence of a number of agencies in a community increases the opportunity for casual and regular wage work throughout the year.

Without any change in the economy, the future for wage work is not promising. The shut-down of the North Rankin Nickel Mine is, in this connection, of the utmost significance. Unless this wage vacuum can be filled, either directly by the establishment of industry within the region, or indirectly by relocation of the population, then the implications are clear - there will be a phenomenal increase in relief payments.

Social Payments: Payments for Family Allowance, old age, etc., will vary with the population structure and will continue to provide a significant, though not large, income.

Relief: In two communities, the contribution of relief to total income is outstanding. In Baker Lake, few people are now living off the land and, in the absence of increased wage employment, there is no other source of livelihood. The situation at Eskimo Point is similar and the part which the whaling project will play in its future is not yet clear. Relief in other areas is not likely to increase significantly except in the case of Rankin Inlet as noted above.

Arts and Crafts and Tourism: There are opportunities for further development of these in most communities, but shortage of skilled staff to give the necessary guidance and training is serious.

Renewable Resources: Income from these may vary upwards under certain conditions and depending on events in other sectors of the economy. In planning future projects, the significance of renewable resources as sources of food and materials for local consumption must be kept in mind.

¹ For convenience the following abbreviations are used in this report:

D.N.A. & N.R. or D.N.A. for Department of Northern Affairs and National Resources.

D.O.T. for Department of Transport.

R.C.M.P. for Royal Canadian Mounted Police.

I.N.H.S. for Indian and Northern Health Services.

H.B.C. for Hudson's Bay Company.

Within all the Keewatin communities there are similar features. Regular wage employment affects relatively few individuals, while almost everybody has wage-work at some time of the year, mainly during the shipping season. Social payments such as family allowances vary with the population structure, whereas relief which is negligible in Coral Harbour has amounted to about \$8,000 in one month at Baker Lake. The renewable resources contribute food, cash income, and clothing materials in proportion to their abundance and the motivations of the local inhabitants.

With the closing of the Rankin Nickel Mine a major source of income and the raison d'être of a large settlement has ceased to exist and there is at present nothing to take its place. In the absence of any industry the people of Rankin are faced with re-location (or re-dispersal) because the renewable resources of the immediate area are not thought to be capable of sustaining them. Relocation would affect all the other settlements in Keewatin, and while it would have little effect on the standard of living in some communities it could exacerbate already depressed situations in others, for example Baker Lake and Eskimo Point.

Re-dispersal could perhaps be guided towards those areas where resources are relatively abundant, but this would not satisfy any of the long term needs for social development. Also, it would almost certainly have the effect of demoralizing some of the Rankin families who had been making progress in steady wage work.

Since there is no prospect of any new mining activity in the region in the near future, the question arises is there any case for the establishment of a secondary industry somewhere in the region, e.g. at Rankin?

To be successful, such an industry should be geared to meet the future real needs of the region, and should preferably offer the broadest possible scope for social development along a number of avenues at the same time. It should also be an industry which can operate with minimum support from other industries. Various suggestions have been made in the past, but these have rarely been appraised in relation to the long term needs of the region. This topic is discussed in Part IV of this report.

The use of a resource is not solely a function of its natural geographic characteristics; it is also a function of the way man applies his energies and intellect in the pursuit of his goals. Consequently, it is dynamic rather than a static thing, changing in response to changes in population, technology, economic and social values. In advanced societies resource use is being continually re-evaluated and adjusted to bring it into line with social purpose. When the Eskimos of Keewatin are capable of re-evaluating and adjusting their resource use by modern standards, they will have reached the stage where they can play a more decisive role in their own progress.

At the present time an extremely important feature of Keewatin life operates to hinder this progress. The people of Keewatin today can be described aptly as 'different-place-miut'.

Adjacent houses for example in Rankin are occupied by families who may not know each other's names, and in other parts of Keewatin there are many instances of group cohesion inhibiting full community action and consciousness. While the schools will go a long way towards integrating the various group there is room for development of community and regional consciousness through adult and school education. Additional impetus could be provided by means of a small regional newspaper and radio communication whereby communities could broadcast news of their activities. The spread and communication of ideas and news is central to the concept of total human development and so long as there is aloofness between groups so long will there be a barrier to progress.



Photo 2 - Old R.C.M.P. post at Cape Fullerton



Photo 3 - Lake north east of Daly Bay, mid-August 1962.

II RENEWABLE RESOURCES

The economic wildlife of the area includes a wide variety of land and marine mammals, fish and birds.

Minor Fauna

In addition to the major fauna which are reviewed below, many other species are available or used to some extent by the Eskimos for food, clothing, or cash. Among the birdlife, geese and ducks abound in several areas, but present legislation prevents the Eskimos taking many of these when they are most abundant. No information is available on the efficiency with which the Eskimos use these birds, but it is reasonable to suppose that there is little waste. Ptarmigan are often taken in the winter time.

Other land animals include wolverine, Arctic hare, weasels and polar bears, the latter being more common in the northerly areas. Barren-ground grizzlies are sometimes sighted in the interior barrens.

Major Fauna

- | | |
|-----------------|---|
| Land animals: | Foxes (mainly white), caribou, and polar bears. Wolves and wolverine are economically important as predators. |
| Sea animals: | Ringed and bearded seals, walruses, white whales. |
| Fish and birds: | Char, trout and whitefish; ducks, geese, and ptarmigan. |

The species listed above are exploited with varying degrees of intensity throughout the area.

1. Fox

The fox has been the most important renewable resource traded for cash or credit during the present century. The history of the fox in the Eskimo economy has been aggravated by two features: one biological, the fox cycle, the other economic, price fluctuations. The fox population fluctuates widely over a four-seven year period; and times of high prices have not always coincided with periods of low fox numbers in any given district. These two factors have been primarily responsible for the unstable nature of the Eskimo economy in the last few decades, but other factors which affect the fox take in any area must be mentioned. These include:

- (i) The general availability of fox in the area.
- (ii) The number of dogs owned by individual trappers and the availability of dog food.
- (iii) Predators.
- (iv) General health of the trappers and their families.
- (v) Enterprise and skill of the trappers.
- (vi) Alternative employment or sources of income. The availability of wage work may reduce the number of full-time trappers in any area, and similarly some individuals may prefer to accept some measure of relief rather than attempt to derive more sustenance from hunting and trapping. This matter will be discussed later.

Some of these matters are discussed elsewhere¹ but certain aspects require particular emphasis here.

(i) Not all areas equally endowed with fox resources. The area between Chesterfield Inlet and Wager Bay, and in the immediate vicinity of Chesterfield are considered areas which have never been well populated with fox. More recently the concentration of population in Baker Lake has resulted in the depletion of fox resources in the vicinity of the settlement, and the same tends to be true of the other settlements in the region. On the other hand, the sand plains south of Garry Lake, an area now uninhabited by man, is considered to be one of the best fox denning areas in the central Arctic² and the remainder of Keewatin generally is considered by at least one authority on the subject to have sufficient fox resources to supply energetic trappers with a good income.*

(ii) Since trapping is a mobile operation it is self-evident that the number of dogs and the amount of dog food available to the trapper will influence his trapping activities. The importance of the health of

¹ See Loughrey, A.G.: 1961, and Brack, D.; 1962

² McPherson, A.: 1959.

*----- Personal Communication

the trapper is almost equally self-evident. A man debilitated in health cannot trap efficiently, and an occurrence described for item (IV) serves to show the interplay which prevails between the trapper's health, dog food, and his dogs.

(iv) In September and October 1956 in Chesterfield, an outbreak of influenza complicated by measles and pneumonia resulted in 9 deaths. In addition to this the fact that some men, and in some cases whole families, had to be evacuated to hospital meant that many dogs were ill-fed, some died, and some had to be shot. Consequently, the following trapping season was a poor one.

(iii) Predators take their toll of foxes caught in traps. Reports from Baker Lake and Eskimo Point indicate that as many as 50% of the foxes trapped have been destroyed by wolves, wolverine, and other foxes, notably the red fox. The predator control program initiated some years ago and aimed mainly at wolves has cut down the loss considerably and further loss could be reduced by more frequent trips along the trap line. The predator control program - aimed mainly at wolves - also reduces predatory activity against caribou.

(v) The enterprise, skill, and knowledge of the trappers has much to do with their fox take and normally the skill and knowledge are matters for paternal instruction. Sickness or death of the father can result in a youngster being poorly or inadequately trained in trapping.* This was apparently one result of the Garry Lake and Henik Lake disasters in 1957-58.

The fox take in recent years in mainland Keewatin is shown in Table I.

Average prices paid for pelts at the different stores are not readily available. The lowest price ever paid at Baker Lake was \$3.50; in 1959-60 the average price was around \$12.00, but in 1960-61 as much as \$30.00 was received for good pelts. Prices for 1961-62 are shown in Table II and the average takes for a period of years in Table III.

As fox furs will continue to provide an important income to the inhabitants in future years, steps should be taken to restore the status of trapping in the area. In view of the recent human history of the area and the present human situation this will be no easy matter. Furthermore, revitalized trapping calls for consideration of many of the factors involved in trapping including mobility, security, organization, and education of the trappers.

* Most white people with long experience of the north and the Eskimos claim that the average Eskimo is not an efficient or productive trapper.

Table I Fox Take, Mainland Keewatin 1952-62

Year	Eskimo Point	Padlei ¹	Baker Lake	Rankin	Whale Cove	Chesterfield
1951-52	1640	252	2192	-	-	414
1952-53	3687	1140	969	-	-	433
1953-54	6375	363	2032	-	-	446
1954-55	3403	864	3062	-	-	698
1955-56	3249	1032	776	-	-	500
1956-57	856	323	1203	-	-	108
1957-58	1046	455	1450	40	-	299
1958-59	1907	460	541	301	-	503
1959-60	417	148	358	204	N.D.	15
1960-61	1537	50	1833	1172	N.D.	140
1961-62	2000	-	858	900	904	473

1 Closed in summer of 1960

Source: Unpublished data, Fur Export Records, Territorial Division, Department of Northern Affairs and National Resources.

The total fox take in any community for any year is partly related to the number of trappers. During the last decade, and particularly during the last three years the number of trappers has declined. Table IV compares the approximate situation today with that ten years ago.

Table II White Fox Fur Prices 1961-62

Settlement	Average Fur Price
Baker Lake	\$10.39
Chesterfield	N.D.
Eskimo Point	10.41
Rankin Inlet	11.71
Repulse Bay	9.77
Southampton	9.93

Source: Territorial Division,
Department of Northern Affairs
and National Resources.

Average Fox Take - Keewatin Region Table III

Settlement	Period	Take
Eskimo Point & Padlei	10 year average	3,120
Whale Cove		(insufficient data)
Rankin	5 year average	539 (5 years)
Chesterfield	10 year average	403 (during this time trapping activity has decreased)
Baker Lake	10 year average	1,527
Coral Harbour	10 year average	1,778 (1949-59)
Repulse	10 year average	440

Table IV Number of trappers trading into various posts

	1952-53		1961-62	
	No. Families	No. Trappers	No. Families	No. Trappers
Eskimo Point	58	90	-	87
Padlei	25	20	-	-
Baker Lake	90	100	100	20-30
Chesterfield	50	60		School children
Rankin				6
Whale Cove			38	44

2. Caribou ★

The barren-ground caribou is a resource which provides food for almost every Eskimo in the region at some time during the year, and to many it is a major food source. Unfortunately, the caribou are a resource which has been and still is badly misused to the detriment of the herds and to the eventual detriment of the people of the region. They are at present a declining resource largely because of the wasteful manner of human utilization.

General Life Cycle

The calving period occurs in June, at which time the pregnant females occupy the higher terrain of the district in which they happen to be. Banfield¹ suggested that there was no strict geographic area for calving, but Kelsall² has since concluded that certain areas are preferred by different herds. The southern Keewatin herds, for example, usually calve in the Kaminak-Kaminuriak Lake area.

Mortality associated with calving varies within wide limits. The theoretical maximum and theoretical minimum have been calculated as 30% and 7.5% respectively. Banfield noted that in nine years of observations, the calf crop amounted to over 20% of the herd in two years, less than 10% in three years, and averaged about 13.8%. Heaviest calf mortality was observed to occur on the calving grounds just after parturition.

Moult occurs in June and July, when large quantities of hair can be found on the tundra where caribou have recently passed. The timing of the moult varies with the age and sex of the animal.

All bulls and most cows have antlers during the rut in October. From mid-November the males begin to shed their antlers, adults first, followed by the younger animals. By February the males have generally lost their antlers which start to grow again in March. Females are out of phase in this respect with males by about four months. Their antlers start to grow in early summer and continue to grow through summer and autumn. Velvet is shed in October and the antlers around May or June.

Fat storage, very relevant to human utilization, varies with the age and sex of the animal. Adult bulls commence building a layer of back fat in the late summer continuing during September and October until the rut. As bulls eat little during the rut, they generally enter the winter in a lean condition and usually remain so through spring and early summer. Fat accumulation begins later in cows, seldom starting before early September and reaching a maximum in late autumn or early winter.

★ During a summer season of field work in which most of the time is spent on the coast, it is not possible to make many caribou observations. Consequently, the following account depends heavily on records, published reports, and discussions with local informants.

1 Banfield, A. W. F.; 1954

2 Kalsall, J. P. ; 1960

Pregnant cows are usually very lean and do not start to accumulate fat until late in the season, whereas barren cows often remain fat throughout the winter and start to accumulate back fat about mid-August. Calves are lean throughout their first winter. Yearlings and two-year-olds usually start to accumulate fat about mid-summer. The cycle of fat deposition varies according to a number of factors. Adverse snow conditions, e.g., snow with a thick crust causes the animal to expend a good deal of energy in breaking through to the vegetation below. A band which has spent the winter on a rich range (with good snow conditions) may retain relatively thick layers of fat during the spring migration. But biting insects on the tundra in summer may so harass the animals that they cannot feed quietly with the result that their meat is of poor quality and they may lose fat during this period even on relatively rich range. In autumn a fat animal identified by its generally beefy appearance of the tail when the animal is running.

Predation

Wolves have long been considered a major cause of loss among caribou herds, but various studies suggest that the herd loss ($2\frac{1}{2}\%$ to 5%) to predators has declined and is not nearly so serious a problem as the waste through poor human utilization, preservation, and hunting practices.

Wolves prefer to den in eskers, drumlins, and other sandy areas, and near large rivers and lakes where the comparatively lush vegetation supports a variety of wildlife. The sandy area west of Nueltin Lake is favourable wolf habitat.

Wolves are known to cache meat for future use, but in the Preliminary Survey¹ it was found that unused human caches were more common than unused wolf caches. They will also raid human caches and fox traps. An average wolf might eat about 18 caribou per year, but would kill more than it would eat. Banfield estimated a possible loss to wolves of 2.5% of the total caribou population, and not greater than 5% even during years of wolf abundance.

At the Second Session of the N.W.T. Council (1960) it was reported that:

"The Predator control operations in the northern parts of the provinces and the Northwest Territories have been continued more or less undiminished in scale. The field men have reported seeing very few wolves anywhere and many of the baits set out have yielded almost no results. Those of the predator control hunters who were in areas where caribou spent the winter had good results, but those away from caribou concentrations had little luck. It seems generally to be accepted by the field men that predator control has gone about as far as it needs to go and we should be looking to its reduction in the near future before wolves are exterminated from those regions of the barren grounds inhabited by caribou. Extermination was not the original intention; as will be recalled, the emphasis was on control. The Northwest Territories Administration

¹ Banfield, A.W.F.; 1954

reports taking a total of about 500 wolves which figure is subject to correction as more reports are available from the predator control officers in outlying districts."¹

Human Utilization

Estimates of caribou takes are shown in Table V. In addition to the meat of caribou, Eskimos will use the tongue, kidneys, liver, back fat, stomach contents, blood and marrow. Meat is boiled if fuel is available, but may be eaten dried or frozen. Caches made in summer and early autumn are usually not fit for human consumption in the winter and are used as dog food. Better preservation methods would improve this situation.

The amount used for dog food varies from area to area and according to whether the dog owner is using other kinds of dog food.

Fish is not, and never has been, used as much for dog food as it should be. Estimates of the number of caribou used for dog food vary widely. Banfield estimated a six-dog team would get 50 caribou per year. Corporal Deere of the R.C.M.P. at Baker Lake informed the Survey that in the course of discussing this question with local Eskimos he had come to the conclusion that about $3\frac{1}{2}$ caribou per week would be fed to a six-dog team during the working season - a remarkably high estimate.

Hides for winter clothing are secured during July and August and September. Hides taken in late autumn and winter are useless for clothing because of the length of the hair, but are being used for sleeping robes, beds, snow-house insulation, etc. About 25 or more hides would be necessary to clothe a family of two adults and two children.

A few comments in connection with waste and human utilization made in Banfield's report are worth repeating here.

"Lawrie also reported on the extravagant use of ammunition by Eskimos when hunting caribou. Between the middle of August and the middle of October 1948, 3,000 rounds of 30.30 ammunition, 500 rounds of .303 ammunition, and 120 rounds of 44.40 ammunition were issued to eleven heads of families at Mueltin Lake. On November 5 1948 five of these families had no ammunition left. The expenditure of so much ammunition probably resulted in heavy and wasteful slaughter of caribou.

Such wastage has been reported by many writers during the last century and the early part of the present century. It is regrettable that these conditions still exist. From interviews with wardens, traders, missionaries, and trappers in the northern parts of the provinces and the Northwest Territories it is known that excessive wastage is widespread throughout the whole range of the caribou and is indulged in by Indians, Eskimos and some European trappers" (Banfield, 1954b pp. 59-60).

1 Sessional Paper No. 8, 1960 (Second Session)

Table V Human Utilization of Caribou

Settlement	1941	1951-2	1952-3	1953-4	1954-5	1955-6	1956-7	1957-8	1958-9	1959-60	1960-1	1961-2
Baker Lake	4,610		12,200		5,000			440	1,200		3,600	1,575
Chesterfield	672		1,000		200		600	2	2	20	42	35
Tavanni	1,450					806				Closed		
Padlei	1,625				2,000					834	Closed	
Eskimo Point	3,690		4,500		5,000		4,000		1,400	782		
Kazan	3,000				1,500							
Whale Cove												
Rankin Inlet												132

Sources: Compiled from various sources including Banfield, Kelsall, R.C.M. Police reports, and unpublished data in D.N.A. files.

In addition there is loss in the trappers' and hunters' caches. An Eskimo's supply of meat usually consists of a number of caches and there is a loss incidental to this form of storage. "These caches suffer from depredations by scavengers, such as wolves, foxes, wolverines and barren-ground grizzly bears, which may consume a considerable part of the trapper's meat supply. It is difficult to obtain an estimate of such losses. From discussions with many trappers it is estimated that losses from scavengers may go about 10-20 per cent. Individual trappers reported losses up to 75% under exceptional conditions" (Ibid. p. 60).

This wastage is no new thing. In the past, killings at river crossings tended to be in excess of immediate needs.

Migrations

Caribou are nomadic and gregarious animals. Distress among Eskimos in the past has occurred when caribou have failed to appear on their normal migration route or have changed their migration pattern and timing. There are three main migrations: spring, mid-summer, and autumn; the first being northward from the tree-line, the second southerly with a later northerly swing, and last being the return into the forested regions.

The northward movement which starts below the tree-line is initiated about January and February by the pregnant cows and calves. The majority of mature bulls follow the cows and calves on to the summer tundra range. Commonly, adult bulls will remain nearer the tree-line than the cows and youngsters. Some segregation occurs during this period, younger bulls travelling in the herd whereas the older bulls tend to group on the outskirts of the herd. The mid-summer migration tends to bring all the sexes and ages together before the beginning of the rut. During the southerly autumn migration the bulls form the vanguard, and usually penetrate farther into the forest area than the females. Kelsall reported an autumn dispersal, previously overlooked, which made caribou difficult to spot as they abandoned the herds and wandered individually or in small groups. Kelsall also reported that to identify the sex and estimate ages of animals on the range was more difficult than had previously been thought and required considerable experience. With regard to winter migrations, these appear to take place in the direction of snow gradients; i.e. from thick to thin snowcover, and from high to low density snow.

Herds vary in size and may number thousands of animals. They sometimes join at watercrossing when over 60,000 caribou may be gathered together for a short time. The herds frequently break up into smaller bands and smaller groups of perhaps two or three animals.

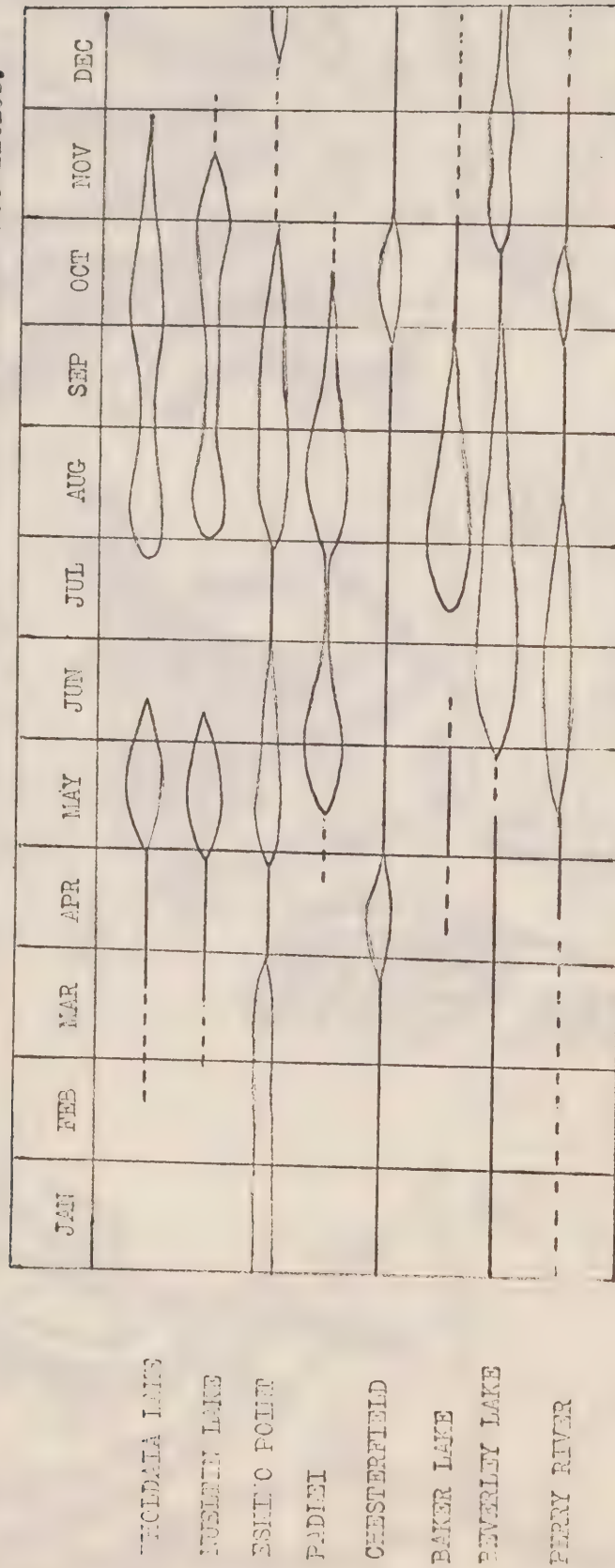
Being gregarious, the species has no individual home range, but being nomadic, the herd's home range may be 800 or more miles long. The maximum distance travelled in one day is probably in the neighbourhood of 40 miles, averaging about 20.

During the Preliminary Study, herds were identified and numbered, and their migration routes mapped. The routes of the herds of interest in this report are shown in Fig. 3 and the periods of occurrence near various settlements in Keewatin in Fig. 4.



Fig 3 Migration routes of caribou herds in Keewatin.
Source: Reproduced from Banfield, A. W. F.; 1954 (a)

Fig. 3a Periods of Occurrence of Caribou in Keewatin Localities.



Source: After Benfield, A. W. F.; 1954 (a)

It will be seen from the migration maps that the larger herds winter in the provinces. These herds are therefore hunted by Eskimos in Keewatin and Indians and others in the provinces. This is significant to arguments for or against controlled kills - any attempt to establish a quota on the herds has to be applied fairly to all groups using the herds.

It will also be seen from the maps that the two westerly herds pass through the Thelon Game Sanctuary in the course of their normal migrations and are consequently free from human attack during the period they are in the Sanctuary.

The northern herds (12, 17, 18) find their entire home range within the Keewatin District.

Herd Size

Estimates of herd size are shown in Table VI which includes the findings of a brief but detailed study by Loughrey and Kelsall in 1955-57.

Conclusion and Discussion

The conclusions in Banfield's report are still relevant today:

The chief source of waste are:

- "(1) loss by putrefaction of meat of animals taken in late summer for hides.
- (2) theft by scavengers from poorly made caches.
- (3) wounding of animals and failure to trail them.
- (4) slaughter of caribou beyond immediate needs.
- (5) caching of meat along a route not subsequently revisited.
- (6) use of caribou meat for dog food when other foods, e.g., fish are available.
- (7) failure to utilize the whole carcass.

The present population of caribou is large enough to supply all the basic needs of the dependent population on a continuing basis if only sufficient caribou for basic needs are killed and there is no wastage." (Banfield, 1954b p. 70).

These conclusions remain generally true today. The decline in the number of caribou killed over the last ten years is largely due to the people having become settlement based and the decline in the caribou population. Also the increased number of houses, and the use of canoes means that fewer hides are used for insulation of snow houses and making kayaks, but the hides are still valuable for clothing and sleeping robes. The wastage due to poor human organization and wanton action continues,

Table VI Estimated Herd Sizes In Keewatin

Herd No. (Banfield)	Name	Winter Range	Summer Range	1953 ¹	Size 1955 ²
CENTRAL KEEWATIN					
8	Saskatchewan	Wollaston L.	Kazan R.	25,000)	112,700 ^a
9	Brochet	Reindeer L.	Baker Lake	40,000)	
10	Duck L.	Nelson House	Baker Lake	25,000)	
11	Churchill	Nelson R.	Baker Lake	55,000	35,200
17	Aberdeen L.	Aberdeen L.	Perry R.	10,000	8,850
18	Hudson Bay	Hudson Bay Coast	Mouth of Back R.	3,500	900 ^b
	Barrens north and south of Chesterfield	Daly Bay			7,400 ^{d(N)}
					1,560 ^{d(S)}
				<u>138,500</u>	<u>166,610</u>
					(136,000 approx.) ^{aa}
OTHER KEEWATIN HERDS					
7	Athabaska	Lake Athabaska	Thelon Lakes	75,000	N.D. ^c
12		Melville Peninsula		3,000	1,000 ^d
15		Southampton Island		500	Non-existent ³
16		Coats Island		500	N.D. ^c

Notes: a. This figure includes a large number from the more westerly herds. The true size of the herds was probably not more than 80,000 to 90,000 animals. aa Adjusted total.
 b. Includes only animals on the coast north of Chesterfield.
 c. The size of this herd is probably still about 500.
 d. The areas named are considered to be the home ranges of these herds, i.e. they do not take part in migrations below the tree line.

Sources: 1. Banfield A.M.F.; 1954
 2. Loughrey, A.G.; 1958
 3. Frack, D.M.; 1962

although perhaps at a lower level. Estimates of animals crippled vary from different sources. One informant at Baker Lake claimed that 80% of all caribou hit by bullets become wolf bait. If this were true (and it would seem to be an exaggeration) the kill at Baker Lake would amount to 8,000 to 10,000 caribou per year. Another informant at the same settlement stated that he believed that the Eskimos did not kill any more than they needed, and that they shot to kill. Reports from other areas in the region make mention of women and youngsters shooting aimlessly in to herds of passing caribou with rifles of .22 calibre.

Possibly, failure to utilize the whole carcass¹ is less serious than it used to be, but there remains the loss of human food to dogs and the problem of educating the people in better preservation* and butchering techniques. The lasting effect of conservation education is by no means certain. When the caribou are scarce the Eskimos seem to accent the recommended restraints, only to forget them again when large herds roam within sight. The kill of 3,650 reported from Baker Lake in 1961-62 is hardly indicative of restraint. Continued efforts in this direction are vital.

Since 1957 there has been no detailed study of the Keewatin herds. A complete survey in the near future would be of great help in assessing the Keewatin resources.

A watching brief on the situation has been maintained and findings reported from time to time to the Council of the Northwest Territories. Some extracts from these reports are important here.

At the Second Session (1960) it was reported that:

There also were reports of over-utilization of caribou in the Keewatin District by the people trapping out of Padlei and Eskimo Point. Evidently the trappers at Yathkyed Lake had caribou with them during most of the winter and made the most of their opportunities. An investigation of the situation by the R.C.M.P. and the Northern Administration Branch revealed that the kill of caribou was not unusual; which meant merely that it was as high this year as it had been in previous years.

At the First Session (1961)² "The Tragedy of the Caribou" was described as follows:

1 It is of some interest to compare recent accounts of caribou utilization with those of the earlier travellers in the area. The latter (e.g. Birkett-Smith) described very full utilization of carcasses.

* As this was being written a report was received from Baker Lake that one trapper there had set up 100 caches of caribou meat on the tundra.

2 Sessional Paper No. 7, 1961 (First Session)

"Through the efforts of all interested agencies, adequate utilization data were collected during the winter of 1959-60. These data indicated that much of the increment was eliminated by human hunting activities. Records revealed that there were 5,000 caribou killed in northern Saskatchewan, 4,500 killed in northern Manitoba, 12,000 killed in Mackenzie District and (6,000 in Keewatin), for a total of 27,500. If we assume the reported estimates to be only 10% too low, and these coupled with a 15% crippling loss, then the decrement from human causes alone would be 34,800 caribou, leaving fewer than 10,000 animals as an increment to the herds.

Clearly this is an unwarranted slaughter and a most unfavourable reflection upon all administrative agencies within the range of the barren-ground caribou.

On a regional basis excessive slaughters were recorded from northern Saskatchewan where 170 hunters accounted for 7,000 caribou, from the vicinity of Baker Lake where 50 to 60 hunters slaughtered 3,650 animals, and from the Coppermine-Bathurst region where 60 hunters killed about 4,000 animals. (The R.C.M.P. reported that 17 hunters from Bathurst killed 1,700 caribou!)

Weather conditions have favoured calf survival during the past three years and predator control programs have reduced the wolf population to relatively low numbers, yet the tragedy is that despite the best efforts expended, the human element in the equation has remained unchanged or worsened. There are several reasons for this:

In the first place, caribou unfortunately have wintered near Indian and Eskimo settlements which fact has not only made them easily available, but also has fostered the idea that the caribou have been saved; that the population has recovered. Thus, there has been general loosening of the surveillance by various agencies that previously was partially effective in keeping the kill compatible with yearly increment. The hunter lacking any unified voice of caution has continued his old practices unabated.

It is apparent that if human utilization continues at the present level, the ultimate result will be a decline and eventual extermination of the caribou population of the Canadian barren grounds. If calf crops and calf survival remain as high as they have for the past three years the decline will be gradual. However, if calf crops again fall to the levels experienced in the decade prior to 1958, that decline will be rapid and catastrophic. The fact of a lowered calving rate in 1960 very definitely should come as a warning and appropriate curbs adopted."

A summary statement on the herds on the northern mainland will be found in Table G in the Appendix. This statement shows that between 1959 and 1961 the mainland caribou herds declined from 210,000 to 200,500, a decline of about 2.5% per year, "in spite of the fact that calf crops and calf survival were high during those years".

The potential situation inherent in these figures which have been presented to Council has prompted demands for action, and various recommendations have been made including the following which have been extracted from Sessional Paper No. 7, 1960 (First Session) N.W.T. Council.

1960 Meetings *

Recommendation No. 2

The Technical Committee recommended that the sale of caribou hides should be discouraged by a reduction in the price paid by trading establishments or by legislation to provide for a complete prohibition of the sale of hides. This problem exists mainly with respect to the sale of hides at Coppermine, Bathurst Inlet and Baker Lake.

ACTION TAKEN:

The Administrative Committee decided that the desired results would be obtained by an agreement with the northern trading agencies rather than resorting to restrictive legislation. If the transfer of hides between settlements became necessary in specific instances, such transfers could be handled by an appropriate government agency. Information received from the Hudson's Bay Company indicates that the killing of caribou in order to procure hides for sale with consequent wastage of meat is not a widespread practice. This matter has been referred to the Technical Committee for further investigation.

Recommendation No. 3

The Technical Committee recommended that programs to foster domestic fishing to provide an alternative source of food for dogs and humans be intensified.

*

The extracts which follow, comprise some of the deliberations of the Administrative Committee on Caribou Conservation and the Technical Committee on Caribou Preservation.

ACTION TAKEN:

The Administrative Committee approved the resolution in principle and the Chairman summed up the discussion by noting that the recommendation added support to the proposal for the appointment of an officer to carry out a program of conservation, education and camp inspection in the caribou range. The Administration has not yet obtained this position.

Recommendation No. 4

The Technical Committee recommended that an amendment to the existing legislation be made for a complete prohibition against the feeding of any portion of caribou to dogs.

ACTION TAKEN:

The Administrative Committee did not doubt the estimate of the Technical Committee that 50% of all caribou killed are fed to dogs. The present regulation forbidding the feeding to dogs, of caribou meat fit for human consumption, has proven to be unenforceable. The Administrative Committee recognized the desirability of curtailing the amount of caribou meat fed to dogs, however, it recognized the many difficulties facing enforcement officers in dealing with the proposed amendment. The Administrative Committee referred this matter to various field agencies for further supporting material.

Recommendation No. 6

The Technical Committee recommended that all agencies take steps to discourage gainfully employed Indians, Eskimos and other northern residents from hunting barren-ground caribou and that the appropriate agencies should sponsor work programs for unemployed hunters at times when caribou concentrations were available.

ACTION TAKEN:

The Administrative Committee approved this recommendation and all representatives of the administrative agencies pledged their support.

Recommendation No. 7

The Technical Committee recommended that the possession of .22 long and long-rifle ammunition within the range of barren-ground caribou be prohibited.

ACTION TAKEN:

The Administrative Committee approved this recommendation in principle and agreed to investigate the feasibility of

such restrictive legislation. Subsequent action has been taken by various administrative agencies to reduce the amount of .22 calibre ammunition which is issued for relief or welfare purposes and to suspend the issue of such ammunition during periods when caribou are migrating through a settlement or area close to a settlement.

1961 Meetings

Recommendation No. 12

Because the results of a recent survey indicate that forty per cent of all caribou killed are fed to dogs, the Technical Committee recommended that legislation be enacted to give effect to a complete prohibition of the feeding of any part of caribou to dogs in the mainland range of the barren-ground caribou. It was noted that this was a decrease from the previous figure of 50 per cent which was attributed to a decrease in the number of dogs owned by hunters.

ADMINISTRATIVE COMMITTEE:

Did not agree. The Administrative Committee maintained the view that while it is necessary to curtail the amount of caribou meat fed to dogs that to attempt to accomplish this by legislation and enforcement was totally unrealistic. The Committee agree to explore all possibilities for providing alternative sources of dog food to trappers at reasonable prices.

Recommendation No. 13

The Technical Committee recommended that game management and enforcement agencies increase the number of patrols within the range of the barren-ground caribou, in order to control human utilization of caribou.

ADMINISTRATIVE COMMITTEE:

Agreed.

Recommendation No. 14

The contribution which Eskimos and Indians can make to the caribou management program was recognized and the Technical Committee recommended that, as an initial step in a program of developing Indian and Eskimo game officers, when the Assistant Superintendent of Game for the Eastern

Arctic is stationed in Churchill that an Eskimo Honorary Game Officer be appointed at Baker Lake.

ADMINISTRATIVE COMMITTEE:

Agreed.

Discussion

One small but important point arises from the foregoing recommendation No. 7 (1960) in connection with the prohibition of the use of .22 calibre ammunition within the range of the barren-ground caribou. This is the preferred ammunition for seal hunting in open water and, therefore, its use should perhaps be severely restricted to seal hunting rather than banned "within the range of the barren-ground caribou". Relief issues of low-calibre ammunition could be restricted, and the local Hudson's Bay Company stores might co-operate in this respect by discouraging the purchase of low-calibre bullets outside the open water season and when caribou are in the vicinity.

There are three other possibilities not mention above.

(1) The reintroduction of caribou to Southampton Island which would make possible an increase in the total number of caribou in the region.

- (2) The reduction of dogs by means of mechanized trapping.
- (3) The possibility of a quota for each settlement.

Item (1) was the subject of recommendation in the Southampton Island Report. Initial action was taken on this recommendation, but the Government economy program has prevented further action so far.

The reduction of dogs is a distinct possibility and is being explored through the mechanized trapping venture which has already been organized out of Rankin Inlet, (see page 57) As noted previously, distress has been caused in the past when the movements of the caribou herds were not known. This problem survives, but the means are available whereby the organization of the hunters can be improved so that they can combine some of their caribou hunting with other activities and at the same time ensure that utilization of the carcasses is maximal. The possibility of organized hunting of caribou is being considered in connection with the organized trapping venture. Briefly, the idea would be that a given number of hunters with a restricted amount of ammunition would endeavour to get a certain number of caribou, butcher these properly, and bring the carcasses to the settlement, thus ensuring maximum utilization and minimum loss through poor caches.

The possibility of a quota for each settlement has been considered by the Committee in the past. This would depend, among other things, on an accurate assessment of the economy and resources of each settlement, and is complicated by the fact to which we have already drawn attention - that the caribou range extends below the tree-line into the provinces. It would be unfair to impose a quota on the Keewatin Eskimos without a comparable quota for the provinces and Indians hunting below the tree-line in Keewatin. There is the possibility of a "self-imposed" quota for the Keewatin residents. This again depends on accurate assessment of the food resources, and the adoption of organized hunting. Such a venture would depend to a high degree on the educational efforts and should be carried out with very close involvement of the Eskimos in the planning of the operation. Their understanding of the reasons for the operation and benefits which would flow from it would be crucial to the success of the project. An experimental period of "self-imposed" quota could be a first step towards establishing a legal quota.

It is quite apparent that proposals to encourage the use of alternative food for dogs, to prohibit the use of caribou for dog food, to initiate public works programs and thus dissuade Eskimos from hunting caribou at certain times, to adopt quotas, and many other suggestions, depend for their practicability on more certain knowledge of the total food resources of the region and the possibilities for bolstering other phases of the economy. If dogs are to be used, they must be fed and it is pointless to attempt to limit the use of one traditional food unless the magnitude and availability of alternatives is known with a fair degree of accuracy. Likewise, the possibility of decreasing pressure on renewable resources by increasing the opportunities for wage work depends on knowing fairly certainly what phases of the economy can in fact be strengthened or what new activities can be introduced. These matters are, of course, central to this report. With regard to food resources, investigations and analysis carried out by the Survey suggest that the caribou situation can be radically improved and the decline in the caribou halted under certain conditions.

The food potential of the region in terms of its ability to sustain the population is examined in detail on page 60 where it is shown theoretically the present population need not harvest more than 2,000 - 2,500 caribou per year if it adopts measures leading to fuller exploitation of the marine and fish resources.

3. Fish

The most important economic fish in the area are char, trout (various species), and whitefish. Greyling, cod, and tullibee have also been reported in minor quantities in various localities.

The inland lake systems are important to most of these species, but not all the lakes are favourable fish habitat. Those which are so shallow that they freeze to the bottom during the winter are unsuitable. Others, though large, may be so deep that their fish population may be smaller than might be expected. Char inhabit the inland lakes not too far from the coast during the winter, and part of the char population spends the summer in the marine waters along the coast. Falls over six feet in height act as a barrier to migrating char, but land-locked char may be found in lake systems above such falls. Far inland lakes such as Ferguson probably have few char, their fish stock being composed mainly of trout, whitefish, greyling, and minor species.

Baker Lake, though large, seems to have less fish than its size would indicate. It has recently been suggested that the lake has a layer of salt water at the bottom, trapped there as a result of uplift after glaciation. If this is true then the lake is probably less productive of food than it would be were it entirely a fresh water lake.

Most of the old Eskimo camps and all the present-day ones are sited beside lakes or coasts where fish are generally available. Many of the old camping areas which have been abandoned are considered to be near good fishing locations. For example, Garry Lake is reported to have abundant stocks of large fish, but there are no records available which would give any idea of possible yields.

Fish is valuable as a source of human food, dog food, and cash, but in each respect is underexploited at the present time. The fish may be taken in winter by jigging or setting nets beneath the ice. In summer the favourite fishing areas are on the coast. Normally nets are set out near the mouths of rivers or in the vicinity of the settlements to catch char which enter the sea around break-up and return upstream in the fall.

While some fishing is carried on by Eskimos in all the settlements, in most cases the effort is casual. The fishing is not organized and only a few Eskimos try to put up a stock for later use. Many on public assistance make no effort at all to catch fish.

There is a special problem associated with inland people who belong to the Caribou Eskimo groups. To these people fish have never been an important resource. Although they would fish as a supplement to their diet or sometimes for their dogs, much of this was woman's work - except at the weirs. No doubt those inland people now on the coast who will not bestir themselves to catch fish suffer from a sort of "cultural hangover" in this respect.

As a source of cash income fish could be profitable in certain circumstances. Char is now an established gourmet's dish on southern

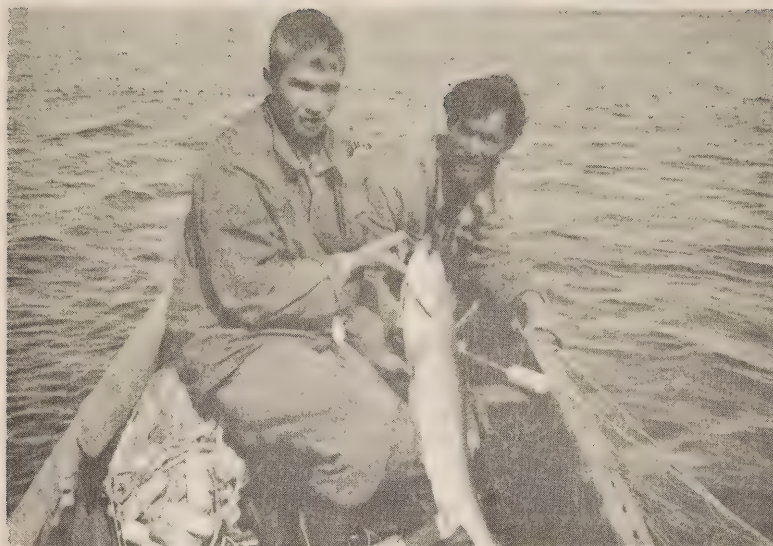


Photo 4 - Netting char at the Meliadine River,
July 1962

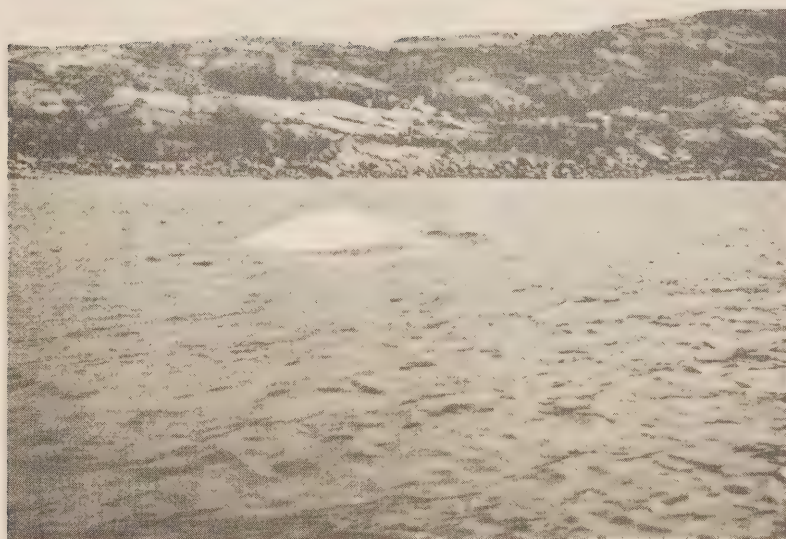


Photo 5 - White Whale surfacing, Daly Bay, Aug. 1962

markets and there are several locations on the coast where there may be enough char for a commercial fishery. However, until the fish population is being so exploited at the local level that there is a true surplus there would be little justification for commercial fishing. An exception to this is to be found in the Daly Bay area where a canning operation could be set up to produce fish for a local market farther down the coast and for export.

As will be seen below, the inland lake fish potential is high - perhaps high enough to interest commercial enterprises, but more thorough fishing investigations would be required to confirm or deny this.

Finally, with regard to fish as a source of cash income, the prospects for sport fishing by tourists was the subject of an investigation by a specialist during the summer of 1962. In his report he stated that the prospects for sport fishing were quite good, particularly for fly fishing, and especially if undertaken as part of a broader tourist venture involving canoe trips, visits to the Eskimo settlements, and the opportunity to observe the other wildlife of the area.

It is with respect to dog food that the fish potential is perhaps most seriously underexploited. As we noted in the previous section on caribou too much caribou meat is being fed to dogs, thus contributing to the decline of the caribou and denying the human population an important source of food. Hortatory efforts alone will not change this situation. A sustained and intensive education program might be of some help, but in the long run only complete understanding on the part of the Eskimo and his willingness to do something about it will resolve the problem. Legislation to prohibit the use of caribou for dog food will be enforceable only if it is known with a reasonable degree of certainty that adequate fish (and other) products are available to replace the caribou meat. To gain the necessary knowledge a great deal of work would still have to be done. The investigations which have been carried out so far have lacked continuity, depth, and breadth, and should be augmented by further study into fishing locations, organization of fishing, possibilities for trolling, drift netting, and other techniques.

Results of the Survey test-netting are shown in Table VIII.

A brief account of the local availability of fish will be given later in the course of reviewing each settlement, but at this point it is of some interest to consider what the total potential for the whole area might be.

Past records, test netting, observation, and discussion with local informants, all help to provide some clue as to potential catches, particularly in the vicinity of the settlements, but this is insufficient as a guide to the potential of the whole area. Fisheries Research Board has suggested that a first step in making such an assessment can be taken by assuming a sustainable yield of $\frac{1}{2}$ pound per acre of lake surface. This is considered to be a conservative estimate. To use this formula it would be necessary to measure all the lakes in the area - a monumental job. So far about 170 lakes have been measured and the results are of considerable interest. Fig. 4 shows the area divided into drainage basins. Only some lakes in each basin have been measured and the half-pound formula has been applied to these.

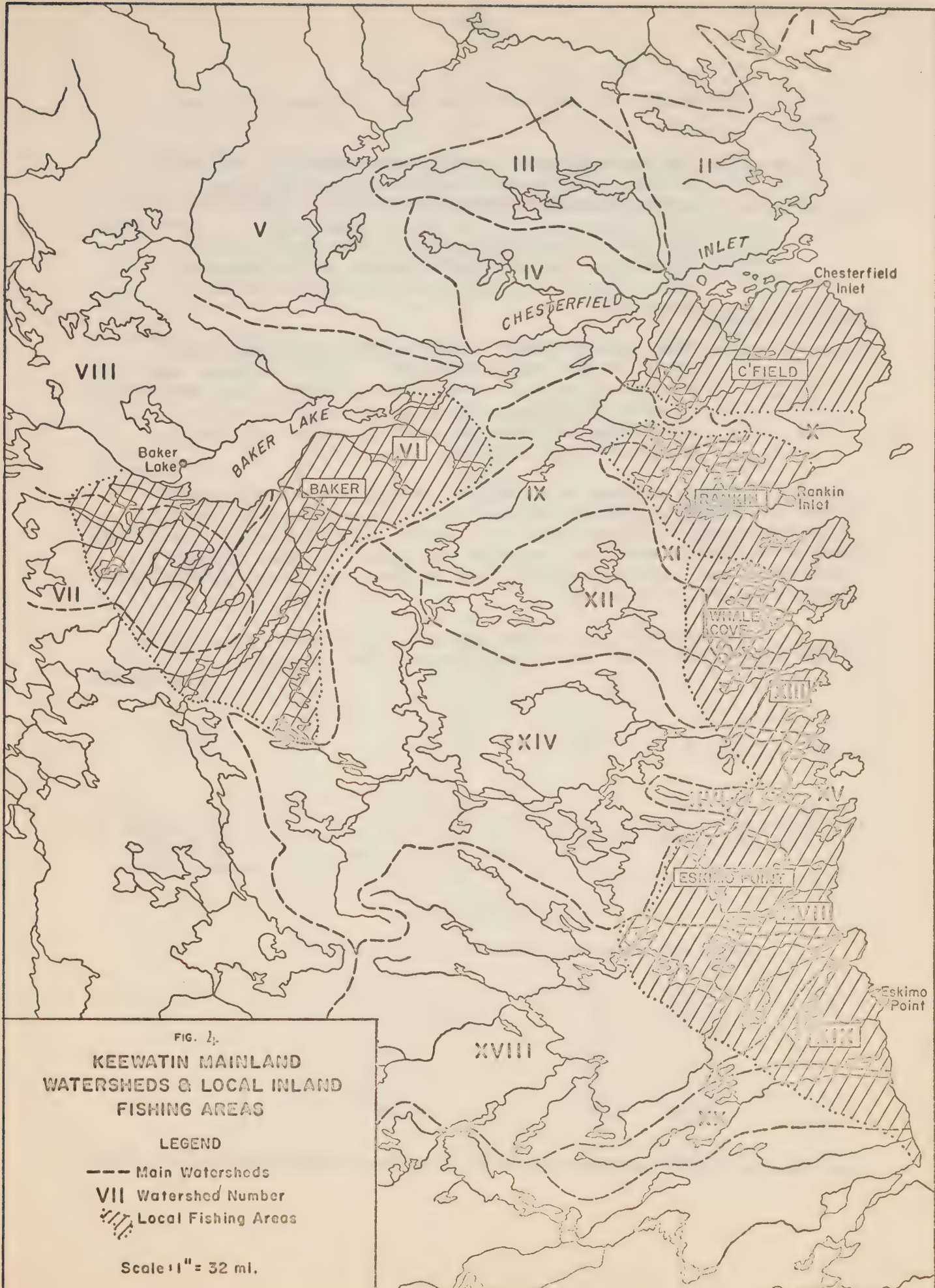


FIG. 1.

KEEWATIN MAINLAND WATERSHEDS & LOCAL INLAND FISHING AREAS

LEGEND

- Main Watersheds
- VII Watershed Number
- Local Fishing Areas

Scale: 1" = 32 mi.

The results are shown in Table VII . Three yields are given:

- (1) The coastal yield. This is an estimate of what might be taken from coastal fishing - the yield being composed mainly of char.
- (2) The local inland yield. This is the yield estimated by applying the half-pound formula to the measured lakes within the shaded area associated with each settlement.
- (3) Other inland yields. These refer to measured lakes lying far from the settlements. It will be seen that the hinterland has a tremendous potential which could probably be exploited by means of fall fishing in association with caribou hunting, and winter fishing associated with trapping.

It must be borne in mind that the estimated inland yields apply only to measured lakes and are based on a conservative formula. It is recognized that some lakes have no fish at all, some may for various reasons produce less than the half pound per acre. Even so, this preliminary estimate is indicative of the great potential lying untapped in the inland lakes.

The estimated fish yields arrived at here will be used later in the assessment of the region's subsistence food potential.

Table VII Estimated yield of fish from Measured Lakes (See Fig. 4)

Settlement	Water shed No.	Area of measured lakes	Total	Yield (lbs. in the round, @ 320 lbs/sq.mi.)	
				Inland	Coastal
Baker Lake	VI	31	358	114,560 50,000*	
	VII	136			
	VIII	191			
Chesterfield	X	33.6	37.1	11,872	20,000
	XI	3.5			
Rankin	XI		162.9	52,128	20,000
Whale Cove	XI	65	109.5	35,040	20,000
	XIII	20.5			
	XIV	10			
	XVI	14.			
Eskimo Point	XVII	80.5	267	85,440	5,000
	XVIII	142.5			
	XVIII	29			
	XX	15			
TOTALS				349,040	65,000

* 50,000 lbs. is estimated for Baker Lake itself and unmeasured lakes immediately west and north of the settlement.

Other Inland Yields

(Other measured lakes not accounted for above)

I	(Daly Bay)	176	56,320
II	(Bernheiner Bay)	8	2,560
VI		22.5	7,200
IX	(McQuoid)	82	27,240
XII	(Wilson)	70	22,400
XIV	(Ferguson)	587	187,840
XVIII	(Maguse)	283	90,560

TOTAL 394,120

Table VIII Survey Fishing Record

<u>Location</u>	<u>Period</u>	<u>Species</u>	<u>- lbs -</u>			
Meliadine River	July 15-23	Char Grayling Lake Trout Cod	7	2	3	964
Kumarvik Harbour	Aug. 2-3	Char				24
Borden Inlet	Aug. 6	Char				1
Daly Bay	Aug. 8-10	Char Cod			1	106
Depot Island	Aug. 12	Char				39
Windy Bay	Aug. 17	Char Cod			1	70
Hanbury Island	Aug. 20	Char Cod			2	16
Severn Harbour	Aug. 22	Char				9
Barbour Bay	Aug. 27-28	Char Lake Trout Tullibee	74		9	39

4. Marine Mammals

The marine mammals known to occur in the area consist of:

- (a) Whales. Of these the most important species is the white whale (beluga). Bowheads, killer, and Right whales are reported from time to time, but these make no significant contribution to the economy of the area at the present time.
- (b) Walrus. These are scarce in the southern part of the area, and although not uncommon in the northern part, are not at present hunted intensively.
- (c) Seals. Ringed, bearded (square-flipper), ranger (harbour), and harp seals all occur in the area, but of these the ringed seal and the bearded seal are the most important from the point of view of both numbers and significance to the economy.

(Details concerning observations made during the survey will be found in Appendix I.)

White Whales

These have long been known to be relatively abundant in the south-west of Hudson Bay, particularly around the mouths of the large rivers such as the Churchill, Tha-Anne, and the Wilson. Large schools of the animals visit these areas in the summertime. They are also common farther north, but so far as is known do not congregate in such large numbers in any one area as they do in the south. According to some reports they may also be found off the floe edge during the winter, a possible occurrence which could be checked from the air from time to time.

In the summer of 1962 96 were taken at the mouth of the Tha-Anne and 176 at Whale Cove by Eskimos participating in Departmental projects.

It has been estimated that 26 were taken at Eskimo Point. At Chesterfield they are nowadays usually only hunted if they approach close to the settlement.

During the period July 31 - September 7 members of the survey counted 76 whales and estimated another 20 while travelling between Rankin Inlet and Whale Point. In Daly Bay on August 8, 40 whales were counted and another 20 estimated.

Poor preservation and utilization techniques have so far prevented fullest use of the whale resources of the area so far as the Eskimo economy is concerned, a situation which is expected to improve considerably as a result of the whaling projects carried out during the summer. A summary account of these projects will be found on pp 50-58 .



Photo 6 - White whale, Daly Bay,
August, 1962.



Photo 7 - White whale, Daly Bay, August 1962.

Research into the population dynamics of the whales in the area by the Fisheries Research Board continues. A commercial whale processing (oil) factory at Churchill recently ceased operations. This factory operated under a quota of 600 animals initially, later changed to 800, but in practice it never handled the full quota. This quota applies, in effect to the whole of the west coast of Hudson Bay and so far there are no indications that an increase in the quota is desirable - better utilization of the present catch is the immediate need. There is a possibility that at some future date the Churchill factory may re-open, in which case the fishery there, at Tha-Anne, and Whale Cove would probably still have to operate within the established quota. To quote Sergeant .

"Within this area, Churchill offers the best site, not only because of its relatively sheltered river estuary, but also because the season of open water is longer, and more white whales are present longer than at more northerly sites. The industrial fishery here could be reinstated for local benefit by injection of the capital necessary to modernize the factory. Native fisheries along the coast to the northward most likely draw on the same stock of whales so that total development should stay within the expected safe quota of 800." (Sergeant, D.; 1962 pp. 10-11)

Walrus

These are relatively scarce in the area. They have been sighted around islands just off the mouth of Dawson Inlet, where one was shot (but not retrieved) in the spring of 1962. They have also been reported at Hazy Inlet, about 10 miles north of Marble Island; and south of Rockhouse Island in open water near Chesterfield Inlet. In the vicinity of Depot Island in the Daly Bay area a herd estimated at 200 was sighted in late May or early June, 1962. Eighteen of these were taken by Chesterfield hunters. Eskimos with Peterheads or whale boats may make occasional trips to the southern waters of Southampton Island in search of walrus, but this is an expensive undertaking and not without its hazards. During the summer of 1961 a Peterhead boat from Whale Cove hunted walrus at Coats Island and returned after six weeks of extremely bad weather with only four walrus.

One reason that walrus are not seen or killed every year off the west coast may be that poor ice conditions prevent the Eskimos from approaching the areas frequented by walruses. After break-up the walruses tend to move away from the vicinity and it is not known whether they return regularly every fall. Discussion with local informants at Chesterfield suggests that fall hunts to Daly Bay might yield up to a dozen walruses.

Seals

The most important seal species in the area are the ringed seal, the bearded seal, and the ranger. The first two are relatively well-known due to the work of MacLaren¹, but less is known about the

¹ MacLaren, J.A.; 1958

ranger. Small numbers of harp seal are occasionally seen in the northern part of the area and a few were seen by the survey north of Chesterfield.

The ringed seal is found all along the coast and is generally hunted throughout the year. Enterprising Eskimos not employed in steady wage work hunt at the edge of the fast ice during the winter. Hunting increases in intensity during the spring when the seals sun themselves on the ice beside breathing holes. During the early summer the sinking rate is high and many killed animals are lost before they can be retrieved. However, during this period the bearded seal tends to be more abundant than at other times and the take of these usually increases. Later in the summer when the ice is gone and the bearded seals move into deeper water, hunting for ringed seals becomes intensive once more. So far as is known the bearded seal restricts itself to the coastal waters whereas the ringed seal may travel some distance up streams. They have been reported to frequent Cross Lake, just east of Baker Lake in the summertime, and one was sighted by a member of the survey in Baker Lake, about two miles from the settlement, in July. Pilots flying in and out of Churchill have reported large concentrations of seals on the ice and along cracks in the ice between Churchill and Eskimo Point in the late winter and early spring. Since little is known of the seal population along this stretch of coast these reports should be investigated and an attempt made to take a census.

The estimated seal harvest at various settlements is shown in the accompanying table.

Table VIII Estimated Seal Take 1961-62

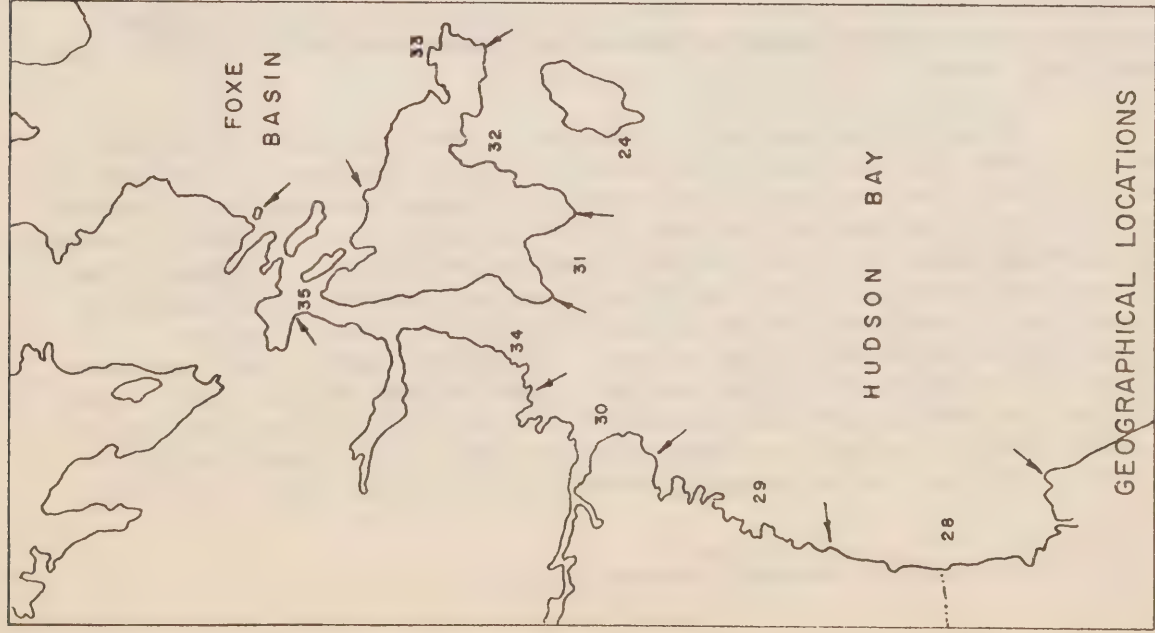
Settlement	Take
Eskimo Point	300
Whale Cove	1070
Rankin Inlet	N.D.
Chesterfield	202

Source: Local information and R.C.M.P. reports.

Ranger seals have rarely been reported in the past, a strange fact in view of the Eskimos' knowledge of areas frequented by these animals. During the survey many Eskimos indicated on maps areas where they had sighted rangers in the past. This was confirmed by the fact that the Eskimos reported these areas as having open water in the winter-time. The information was further confirmed by the survey in the course of field work when rangers were spotted in the mouths of many rivers up and down the coast. In suitable water bodies - e.g. chains of lakes leading into

Sustainable Yield of Seal Population, Western Waters of Hudson Bay

<u>Area</u>	<u>Geographic Extent</u>	<u>Sustainable yield (no. of animals)</u>		
		<u>Ringed</u>	<u>Ranger</u>	<u>Bearded</u>
28	Cape Churchill to Eskimo Pt.	200	10	175
29	Eskimo Pt. to Baker Foreland	1881	99	262
30	Baker Foreland to C. Fullerton	1511	79	191
	Sub-Total	3592	188	628
34	Roes Welcome Sd. both sides, Cape Fullerton to Beach Pt., C. Kendall to Cape Munn	570	30	260
35	Repulse, Duke of York Bays, Frozen Str, Lyon Inlet, Beach Pt. to Cape Fisher	3290		345
31	S'ampton I., Bay of God's Mercy	100		83
32	S'ampton I., South Bay, Cape Low to Leyson Point	590		169
33	S'ampton I., East coast, Leyson Point to C. Welmsford	770		223
24	Coats Island	<u>1140</u>	<u> </u>	<u>208</u>
	Totals	9052	218	1952



Source: MacLaren, I. A.; The Economics of Seals in the Eastern Canadian Arctic; 1958. (Modified to include rangers.)

Fig. 5 Sustainable yield of seals, West coast of Hudson Bay

the sea - they may be found many miles inland. Between August 5 and August 27 the survey counted 19 rangers, 10 of which were sighted in Borden Inlet and four miles up Borden River. Two which had been shot nearby were observed on the beach at Chesterfield.

Unfortunately, less is known about the population dynamics and general habits of rangers than of ringed and bearded seals. However, it is known that rangers and ringed seals are competitive in their feeding habits and therefore any estimate of the ringed seal population in an area known to have rangers must be considered as including both the ringed and ranger seal population¹. The sustainable yield of the seal population for the west coast of Hudson Bay from Cape Churchill to Cape Fullerton has been estimated at 3,780 per year (see Fig. 5). Assuming that 5% of this yield comprises rangers, a take of 3,591 ringed seals and 189 rangers is theoretically possible. As the ranger may weigh twice as much as the ringed seal, this consideration raises the food potential of the seal population.

Harp seals are rarely reported from the area, but they may occur frequently in certain favourable areas. During the survey four packs of six animals were sighted near Cape Fullerton on August 6. Since little is known about the numbers or regular habits of these animals in the area they will not be considered further.

The present level of exploitation lies considerably below the potential level with respect to both harvesting and utilization. The marine mammals are capable of providing meat for human food and dog food, oil for human consumption dog food and fuel, and skins. The skins may be used for articles of clothing, or, with the present favourable prices of \$10.00 per skin or more, traded. In this respect it should be noted that with better organization the use of sealskins could be geared to take advantage of the market - when prices are low the skins could be worked into craft goods or clothing and thus maintain a high value, as is now being done in other areas.

The prevailing method of preserving meat in old barrels necessarily involves a considerable amount of waste. The projects at the Tha-Anne and Whale Cove demonstrated beyond question that proper processing can lead to better utilization in terms of both dog food and human food, waste being kept to a minimum.

In so far as hunting is concerned, harpooning of whales is preferred over netting unless the animals can be retrieved alive from the nets. If not, they rapidly become unfit for human consumption. Whereas a relatively large whaling project can be organized as a community venture, seal hunting with canoes is probably best suited to small groups of two or three individuals. There is, however, a possibility with regard to the netting of seals suggested by Mr. McIntosh as a result of an observation he made during the survey. At Borden Inlet a seal net was set out which had a two gallon can as a float marker at one end. A seal compelled by inquisitiveness approached the can, circling and diving as it went, until it struck the can with its nose. It is possible that a number of nets set out with conspicuous floats in the open water might

1 Dr. I.A. MacLaren; personal communication.

lure seals into the mesh. This suggestion could be tested by choosing an area where seals are seen to be numerous, setting out several nets to drift, and then persuading the seals towards the nets by slowly cruising in a wide circle around them. Using a Peterhead and two canoes in a favourable area might result in a large take with relatively little effort. The use of nets during the season when the sinking rate is high would also increase the take during this period.

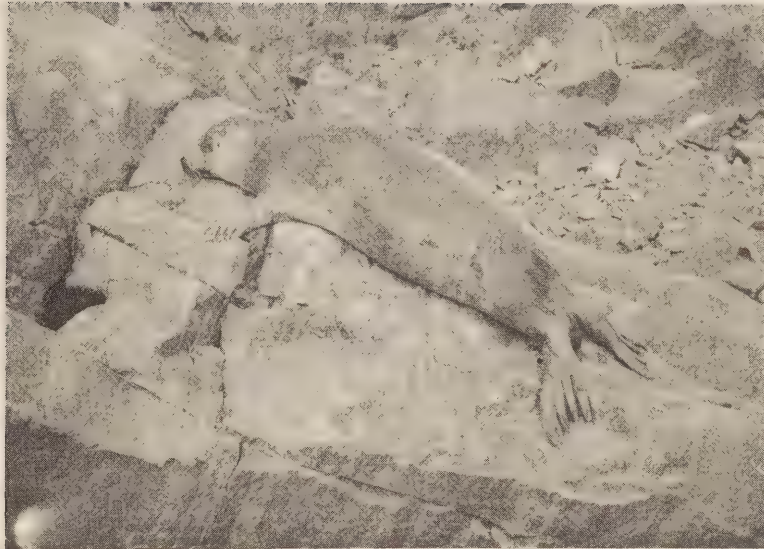


Photo 8 - Harbour seal, Borden Inlet, August 1962.

5. The Stock and Yield of Renewable Resources

Reference will be made later to the implications of the increasing human population. Where renewable resources play an important subsistence role in an economy, the size of the stock and the sustainable yield of these resources governs within fairly narrow limits the size of human population which can be supported in any given area. It is worthwhile at this point to give some thought to this matter.

Generally speaking, the stock of renewable resources in Keewatin is fixed, but with two important exceptions - fox and caribou. The fox population undergoes cyclical fluctuations over a period of years, 1963-64 being the nadir of the present cycle. The caribou population is declining as a result of over-exploitation; they are being killed at a rate which exceeds their sustainable yield. This decline could be halted or slowed by the imposition of closed seasons, quotas, or by the exercise of great restraint by the hunters. The regional stock of caribou could be raised by the re-introduction of caribou to Southampton Island.

MacPherson has drawn attention to an important interrelationship between caribou, fox, and man, which serves to illustrate the ecological niche occupied by the Eskimos in Keewatin. Quoted by Vallee¹ MacPherson states:

"The relation of trapping success to caribou abundance is dual. For the first part, abundant dog food meant long trap lines. For the second, abundance of uncached or poorly cached caribou meat on the Barrens in winter may be expected to have been an important factor in winter fox survival. The present long term decline of the fox harvest may be attributed to the scarcity of caribou."

If this hypothesis is correct, and it seems reasonable, the Eskimos are faced not only with a decline in a major food source, but in a major cash source also. The fact of an exceptionally high fox take in 1961-62 on Southampton Island does not invalidate MacPherson's argument. Although the Eskimos are settlement-based and there are no caribou on the Island, there is probably abundant carrion on Southampton, particularly along the coasts, as a result of the activity of hunters and polar bears.

1 Vallee, F.; 1962, is here quoting from an unpublished manuscript by MacPherson, Report on Wildlife Resources of the Baker Lake Region, Department of Northern Affairs and National Resources, Wildlife Service, Ottawa, 1959. The authors of this report have not been able to find a copy of MacPherson's manuscript.

Although the records are not informative on the point, the fact that a large number of foxes have been sighted and trapped on the Keewatin coast in recent years may be associated with a scarcity of fox food in inland areas. This could, however, be due to more trapping activity on the coast than in the interior. Or it could be due quite simply to the high phase of the fox cycle.

The matter of fox food is of interest in connection with the whaling and food processing project. A large amount of waste results from the project which could be used for dog food. Alternatively, it could be made available to the foxes. It is likely that foxes will be lured by the smell, and linger around the area, in which case enterprising trappers could take advantage of the situation. Also, trappers, especially if using mechanized transport, could haul large quantities of the waste into the interior and set it for bait or discard it for the foxes.

A closer investigation of this caribou-man-fox relationship would be pertinent to the future of the Keewatin people.

With regard to the marine mammals there are no indications that these are declining. Generally speaking, they are underexploited as in several localities they are not harvested to the limit of their sustainable yield. If, however, relocation of sections of the population takes place as is recommended elsewhere in this report, then the sustainable yield would probably be reached within a few years except in one or two unpopulated areas.

The fish stocks are underexploited and the harvest is variable upwards to a large degree.

In terms of human food the yield of most species is variable upwards for two main reasons. Firstly, there are over 1,000 dogs in Keewatin whose food consumption probably amounts to about 500,000 lbs. or more per year. Much of this is acceptable human food¹. This situation could be improved by better food processing and storage leading to more consumption of human food by humans; and by replacement of dogs by machines. It is important to remember in this connection that the need to hunt for dog food often reduces the number of trips a trapper can make along his trap lines thus exposing his trap line to easier predation. Secondly, better storage and food processing would increase the yield of human food from the wildlife resources.

Thus, so long as the renewable resources contribute in a large part to the people's food supply in Keewatin, so long will the sustainable yield be a limiting factor in the size of the human population. The limitations imposed by the sustainable yield will be overcome under two conditions only. First, if the yield acquires a cash value sufficient to purchase more food than could be obtained from the yield; and second, if increased cash income from other sources reduces the dependence on renewable resources for subsistence.

1 For a detailed analysis of possible yield for Mainland and Keewatin see Table XII on p. 54.

In Parts III and IV of this study it will be seen that the "renewable resources barrier" might soon be reached by the expanding population if there is no radical change in the economy.



Photo 9 - Fish drying shed, Whale Cove.



Photo 10 - Sun-drying meat at Whale Cove.

6. Measures to Improve the Organization and Technique of Resource Exploitation

Various expressions such as "mechanized trapping", "organized hunting", "improved food processing and preservation", will be used frequently in the remainder of this report and it is convenient to give some thought to this topic here before going on to discuss the settlements individually.

All the renewable resources can be viewed from the standpoints of harvesting, processing and preservation, and ultimate consumption or disposal. In most cases there are possibilities for improving each phase of the utilization of the resource, and in some cases better use in one respect depends on better use in another.

Marine Mammals

With regard to marine mammals it has been noted that harvesting could be increased by the use of nets in suitable locations. The use of nets jointly-owned by groups of hunters could raise the harvest of the hunters. After setting the nets they could carry on hunting with guns elsewhere and perhaps find an extra harvest in their nets, gained by little effort, on their return. Also, more common use of nets during the early summer would cut down the loss of seals through sinking. One difficulty with nets is that depending on mesh size, they are less selective with regard to size of animal and are liable to catch a high proportion of smaller beasts. However, the hunter with a rifle is not necessarily very selective in this respect - a seal is a target regardless of size. In the case of whales, this consideration is perhaps more important. It was found during the whaling operation at Tha-Anne during the past summer, that hunters using rifles and harpoons, brought in larger animals than were obtained in the nets. Also, the meat of whales found dead in nets goes bad fairly quickly and is unfit for human consumption. With regard to hunting as opposed to netting, whenever possible, the animals should be harpooned first and then shot rather than vice versa.

Generally speaking, organized hunting for whales is probably preferred to netting. Netting for seals is capable of better organization as suggested by the observation of D. McIntosh - several hunters setting nets adrift with large floats or markers and chasing seals into the nets.

Having acquired the marine mammals the question arises - how best to use them? The prevailing method of storing the meat with blubber in barrels is wasteful, much food becomes unfit for human consumption and is fed to the dogs. That there is no need for this waste has been demonstrated effectively by a specialist food officer during the past summer. A brief account of the work done follows:

Food Processing

During the summer of 1962, two processing operations were carried out under the sponsorship of the Department at Tha-Anne River and Whale Cove. These operations were of an experimental nature and introduced the Eskimos to new techniques and methods of handling whale meat for local consumption with encouraging results.

The projects were in the nature of joint efforts involving both Government and Eskimo equipment, and the Roman Catholic Missions provided additional equipment and added to the chances of success by active support and encouragement. The harvesting equipment included Eskimo canoes, rifles and ammunition. Additional canoes, processing supplies and equipment, and the technical supervision of a food processing expert, was provided by the Department.

The general features of the operations are shown in the accompanying table.

Table IX Whaling Operations - General Data

Location	Duration	Numbers Employed	Total wages	Equipment
Tha-Anne R.	July 23 - Aug. 14	12 hunters 4 trainees 6 women	\$5,000	6 canoes, rifles and ammunition, \$2,000 processing supplies, \$3,000 processing equipment.
Whale Cove	Sept. 28 - Oct. 5	1 man 4 women	\$350.	The whales were netted and bought as raw material for processing. \$198. paid for this raw material. Supplies and equipment were brought from Eskimo Point.

The processing supplies included cans, salt, spices, etc., and the equipment included sausage press, steam jacket, can sealer, plywood, etc.

The take and the yield of the projects is shown in the next table.

Table X Take and Yield from Whaling Projects

Location	Take	Yield
Tha-Anne R.	96 Muktuk, canned (portions smoked of 20 Meat, canned processed)Heart, canned Oil	9,400 lbs. Dogfood 34,000 lbs. 4,700 lbs. put in barrels with 6,125 some oil. 150 520 galls.

★ Packaged in Poyethylene containers

Whale Cove	172 Muktuk, sausage (portions fresh of about (in Polyethylene 10 bags) processed) smoked (in Polyethylene bags) oil 302 lbs. 143 galls.
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★Only two of the whales adult. A firm conclusion of this operation was that netted whales are less satisfactory than those which have been harpooned. Netted whales go bad quickly and may be attacked by small marine creatures. If taken alive from the net they may be processed safely for human food.

In addition to the whale processing a certain amount of seal meat processing was also undertaken with the results shown in Table XI

Table XI Seal Meat Processing

Location	Take	Yield
Esk. Point	20 seals (selected portions processed)	Meat, canned 1,036 lbs. Intestine, canned 140 lbs. Liver, canned 35 lbs. Liverworst 40 lbs. Liver pattee 46 lbs. Oil 400 lbs. (fit for human consumption but used for dogfood) Byproducts 400 lbs. dogfood

Whale Cove

A good deal of unsuitable raw material was brought in for processing and had to be rejected. This situation can be put right by further education and instruction. A total of 1,224 lbs. of meat was packaged in 105 oz. cans.

In summary; 22,237 lbs. of human food, 663 gallons of oil, and 39,200 lbs. of dogfood were successfully processed and packaged at a cost of about \$5,200 in specialized supplies and equipment, and \$5,350 in wages. The yield would have been much higher had it not been for the unfortunate effects of netting in Whale Cove noted in Table X.

The processing expert in charge of the operation reported some scepticism on the part of the local Eskimos initially which was soon overcome when they tasted the products. Before the operations closed down, those Eskimos who had participated, expressed hope for the continuation of the project in 1963. According to the processing expert, the local people will be capable of continuing the operation with the minimum of supervision in future years and it is anticipated that the Tha-Anne whaling operation could expand to a take of 300 whales and employ an additional 12 individuals.

Although this kind of food processing requires further experiment and development, the potentialities are of the utmost significance to the coastal people of Keewatin and every effort should be made to exploit the experience and knowledge gained from them not only in Keewatin, but in other Arctic areas.

Table XII is instructive. It shows the amounts of foodstuffs and other products which could be obtained from the marine mammals of the south west coast of Hudson Bay. The whale figures represent the yield which could probably be taken with more intensive hunting around the Tha-Anne and Whale Cove.

At the present time, a large portion of the stuff listed as "man or dog food" goes, in fact, to the dogs. With adequate processing such as described above, there is no need for this. In the course of time, it may be possible to retrieve also some of the blood which at present goes to waste. Ground-up bones mixed with blood, oil, and less desirable meat, would provide useful dogfood. The present method of hunting with rifles is wasteful of blood, but it would not be realistic to expect this situation to change in the near future.

Given an improvement in the overall food utilization situation in Keewatin, some of these processed foods could probably have a cash value as specialty food exports.

Sealskin Tanning

The distribution of the seal population warrants a study of the economics and organization of two sealskin tanning projects. A yield of over 3,000 seals per year is estimated for both the Repulse Bay - Southampton Island areas, and the coastal area south from Cape Fullerton. While the present price for skins - including poor quality samples - is high, tanning and manufacture locally could increase the income from this source substantially. How many skins are needed for local consumption is not known, but probably 1500 skins could be processed in each area by two tanneries, one at Chesterfield, Rankin, or Whale Cove, and the other at Coral Harbour or Repulse Bay. Results from the experimental tannery at Fort Chimo could be used as a guide to the economic feasibility of such a project; and further study of the economic feasibility of such a project; and further study of the mechanics and costs of collection and delivering the raw skins to the tanneries could be made at the local level. Co-operative specialists should be consulted as to the suitability of this kind of enterprise to

Table XII Food Potential of Marine Mammals - Keewatin Mainland Coast

Species	Average Weight	No.	Total Body Weight
Ringed Seal	76	3592	258,632)
Ranger Seal	120	188	22,560)
Bearded Seal	465	628	292,020
Whales	750	500	375,000

Species	Utilization	% of Total Body Weight	Amount lbs.
Ringed & Rangers	Man or dog	27	75,922
	Dog or waste	9	25,307
	blood	5	14,059
	bone	16	44,991
	blubber	32	89,981
			<hr/>
Bearded seal	man or dog	25	250,260
	dog or waste	9	73,005
	blood	5	26,282
	bone	16	14,601
	blubber	27	46,722
			<hr/>
Whales	human food	50	78,845
	bone	17	239,455
	oil	25	187,500
	other		63,750
			93,750
			<hr/>
			30,000
			<hr/>
			375,000

Potential

	Ringed and Ranger seals	Bearded seals	Whales	Total
Human food	75,922	73,005	187,500	336,427
Dog food	25,307	26,202	30,000	81,509
Blubber and oil	89,981	78,845	93,750	262,576

Source: Calculated from data in McLaren, I.A.; 1958

Storage and Preservation

Processing is one way of preparing food so that it can be preserved longer as human food. Processing, however, is still in its experimental stages in Keewatin and if successful, will take a few years to come into common use in the region. In the meantime, the prevailing method of preserving by sun drying will continue to be used.

This works fairly successfully. Meat scraped clean of fat and exposed to sun and wind will not quickly go rancid. All the settlements could use a number of sheds with wire mesh walls for drying meat and fish. Those on site, for example in Whale Cove (Photo 9), are inadequate.

If increased yields result from improved and intensified harvesting, drying may prove to be insufficient, particularly for handling food obtained during the warmer period of the summer. Freezers which have been erected in the communities so far are efficient, but also very expensive. The possibility of making permafrost cellars has been investigated, but the difficulty with these lies in the fact that in Keewatin they would have to be blasted out of solid rock - an expensive undertaking if cellars of adequate size are to be provided. Manufactured eutectic freezers are also expensive in relation to their capacity. A simple eutectic freezer can be constructed on the spot using purchased or scrap material for insulation.

The structure is built above ground and consists essentially of massive ice walls, 2-3 or more feet thick, covered with insulation. The insulation may be moss, earth, scrap material, or purchased insulation. Barrels of crushed ice mixed with salt to keep the temperature below freezing are placed in the cold chamber. The ice walls can be built up by spraying water over a framework and gradually building up a thick layer of ice, or by building walls made of ice blocks cut during the winter time and sealing the joints by spraying water over them. The former method requires that the work commence in the fall, but using the latter method, work could start in winter.

This kind of cold storage has not been tried in Keewatin and should be put to a test. For test purposes the chamber need not be large - 8' X 10' would probably be adequate - and it would probably be most convenient for any community to have two or three small ones rather than a single large one.

Horticulture

It is possible to recommend horticultural projects for each settlement in Keewatin. While these would no doubt confer some benefits, greater benefit would perhaps result from a medium scale experimental project set up in an area where it would provide not only necessary scientific information, but additional food where it is most needed.

Baker Lake come obviously to mind. Such a project, run with the full co-operation of the Department of Agriculture could lay the foundations for the further spread of horticulture after a few years.

Caribou and Fox

The exploitation of the major land resources, caribou and fox, could also be improved.

We have noted that the present trapping methods involve some loss to the trappers through predatory activity. One way to reduce this loss is to make more frequent trips along the lines and thus retrieve the foxes shortly after they have been trapped. While a trapper uses dogs, he has to have dogfood, and if dogfood is scarce, he perforce must spend time between trapping trips hunting for dogfood. Better processing and more organized seal hunting during the summer could result in large stockpiles of dogfood during the winter so that these hunting trips could be reduced. By the same token, fall fishing on the inland lakes accompanied by adequate storage of the fish nearby would raise the food supply for the dogs in the interior. While the amount of dogfood laid up in this way might not be large, it would certainly enable the trappers to set out their lines farther from the settlement, thus spreading their trapping over a wider area. At the same time, as fall fishing is being carried out, organized caribou hunts could also be undertaken. The conjunction of these two activities would, of course, depend on the migration routes and presence of caribou. Stockpiling fish inland for dogfood could cut down the consumption of caribou meat fed to dogs. Obviously, this kind of venture would require much better organization than the Eskimos have at present.

Another way to improve fox trapping is by use of mechanized transport, cutting out the use of dogs altogether eventually. This idea is by no means new and much trapping in north-west Canada is now done by means of Autoboggans, Snowmobiles, Bombardiers, Skidoos, etc. There are some indications that the Eskimos in Keewatin are moving of their own volition towards the use of these vehicles as there are now some Autoboggans and Skidoos in several of the settlements. Some Eskimos have also used Skidoos for seal hunting very successfully. However, the possibilities of mechanized trapping have not yet been explored in Keewatin. The advantages need little labouring; they are cheap to run, they allow a man to cover more ground more quickly and thus travel farther and save more of his foxes from predators; if the trapper is sick for any period of time, this need not affect his trapping program later as would be the case if he had dogs to feed. And, of course, the saving in food and time spent in hunting for dogfood would be enormous.

A mechanized trapping project out of Rankin Inlet has been organized for the 1962-63 season. This will be a low fox year, but the object of the project is not so much to catch foxes as to explore the mechanics of and determine the requirements for this kind of trapping in Keewatin.

The system envisaged is more or less as follows.

Small groups of huts would be set up in the interior for the use of trappers. These huts, sited on the shores of lakes where fish would be available, would contain (separately) food and fuel, and provide sleeping accomodation. Huts set up at Kaminak Lake and Kaminuriak Lake would serve trappers from Rankin and Whale Cove. Trappers from Eskimo Point might use huts on Maguse Lake, or they may be able to use the buildings of the old trading post at Padlei.

Trappers working far from the settlements could make use of these huts for provisions and for resting. Or, they could use them as a base from which to trap farther afield, returning to the settlement every two or three weeks. To obviate the loss of trapped foxes to predators, it is proposed that the trappers work in pairs combined in groups of not less than four men, one pair inspecting the trapline while the other pair is resting, hunting, or fishing. The use of a box-type deadfall should also be considered.

It is planned that fishing the inland lakes and caribou hunting should be undertaken in conjunction with the trapping. But, instead of cacheing the meat and fish on the tundra, it would be taken back to the settlements.

A similar system could be organized at Baker Lake, with huts set up at the north end of Kaminuriak Lake and perhaps at Garry Lake. Although Garry Lake is quite far away, the fox and fish potential there would probably make a venture of this nature profitable. However, in this case, the trappers should work in larger groups of not less than six men trapping in pairs, one of these pairs returning frequently to Baker Lake. It should be remembered that lack of security and communication was one of the main reasons for the disaster of 1958 in that area.

Such a system lends itself much better to mechanical transport than to dog teams, but its organization and development will take some time. Various kinds of mechanical equipment have yet to be tested for their efficacy, and it may be that two types should be used: a larger Bombardier - type vehicle for carrying supplies, and smaller types for the actual trapping operations. In addition to the choice of vehicle, attention will have to be paid to the needs of vehicle maintenance - and judging by the state of many outboard motors there is not as much maintenance carried out as should be.

The system has been described in a pamphlet printed in syllabics and circulated to the Eskimos in the area. In addition to explaining the reasons for the system, the pamphlet asks the Eskimos to make suggestions as to how they think it could be organized and where they think huts should be located. It is proposed that the subject be discussed very fully and carefully by the Eskimo Councils in the various settlements.

Until the modus operandi of mechanized trapping has been worked out, the erection of huts in the interior and the organization of trappers into large groups for more efficient trapping should be fostered through the Eskimo Councils.

7. THE SUBSISTENCE BASIS OF THE KEEWATIN REGION

It is necessary at this juncture to include those other areas of the Keewatin region which have been ignored in this report so far, namely Southampton Island, Repulse Bay, and Wager Bay, which were studied in the course of the Southampton Island Area Economic Survey. The introduction of these areas places the discussion within a more appropriate and regional framework.

The immediate task is to determine the theoretical subsistence value of the food resources. Given this we can estimate the theoretical subsistence population.

The analysis proceeds along the following lines:

1. Definition of geographic areas associated with each settlement and estimation of the harvests of various species of wildlife that might be taken within these areas.
2. Calculation of the food value of the harvests.
3. Application of the food requirements of a "model" family of five to the results obtained in (2) to obtain the theoretical potential number of families which could be supported by the local food resources.
4. By comparing the number of these potential families with the present number of families in each settlement we arrive at the first approximation of the magnitude of over-or under-population in each settlement.
5. The second approximation is obtained by taking other factors into account and modifying the first approximation accordingly. This is done later in connection with the individual settlements.

Geographical Areas

The most important food resources of the region are the marine mammals, and it is appropriate, therefore, to base the definition of the geographical areas on the marine foreland of each settlement. MacLaren's divisions of the western area of Hudson Bay are depicted in Fig. 5 (p.43). To relate these areas more closely to the settlements under discussion we "assign" a stretch of coast to each settlement. Table XIII describes the portions of MacLaren's areas which are assigned to each settlement and contains the estimated yield of wildlife for each settlement.

The yields of the various species of wildlife have been derived as follows:

Marine Mammals

Seals: The yield of seals is based on MacLaren's figures (adjusted to include Rangers) shown in Fig. 5 (p.43).

Table XIII Coastal Areas "Assigned" and Wildlife Yield for Each Settlement

Settlement	MacLaren's Area No.	Portion Assigned	Yield of Wildlife (major species only)					Fish Lbs.	
			Seals	Bearded Ranger	Walrus	Whales	Caribou	Inland	Coastal
			Ringed						
Eskimo Point	28	$\frac{3}{4}$ (northern)	620	32	-	300	450	85,400	5,000
	29	$\frac{1}{4}$ (southern)							
Whale Cove	29	$\frac{1}{4}$ (central)	470	25	-	200	300	35,000	20,000
Rankin Inlet	29	$\frac{1}{2}$ (northern)	940	49	-	-	300	52,100	20,000
Chesterfield	30	Entire							
	34	$\frac{1}{2}$ (southern)	1,653	86	10	55	300	11,800	20,000
Repulse	35	$\frac{2}{3}$ (western)	2,192	-	-	-	250	-	30,000
Coral Harbour	32 & 24	Entire							
	33	$\frac{1}{4}$ (southern)	1,333	-	200	30	40	-	35,000
	35	$\frac{1}{8}$ D. of York Bay)							
Baker Lake			-	-	-	-	600	164,500	-

Each settlement is assumed to have a potential harvest equal to the sum of the fractions of the sustainable yield corresponding to the portions of MacLaren's areas assigned to the settlement. The average take of ringed seals probably approximates the sustainable yield at Eskimo Point, Whale Cove, and areas 32 and 24 (Southampton Island). Present takes at Chesterfield, Repulse Bay, and the northern part of Southampton Island (Duke of York Bay) are below the sustainable yield.

Walrus: The take imputed to Chesterfield is that which could probably be taken if hunters sought walrus in the Daly Bay area. The Coral Harbour take is the average for recent years and represents the sustainable yield. A small harvest could probably be taken each year near Wager Inlet, Lyon Inlet, and northern Southampton Island.

Whales: The harvests imputed to Whale Cove and Eskimo Point are based on expected yields if the whaling projects continue. The Chesterfield figure represents what could probably be taken by more active hunting and netting in the Chesterfield and Daly Bay areas. Whales are also known to frequent Wager Bay, Duke of York Bay, and Repulse Bay, but no estimate has been included for these.

Caribou and Fish:

The land area associated with each settlement is more difficult to define than the sea area. In most cases it would represent an extension of the present sphere of activities (see Fig. 6). The most important land resources are fish and caribou and these present two different problems. In the case of fish the question is - can the Eskimos be persuaded to fish more? In the case of caribou the question is - can they be persuaded to kill fewer? The two questions are, of course, interrelated.

Fish: The calculation of the potential fish catches for each settlement has already been described on pp. 34-37 . The Coral Harbour yield includes an estimated 20,000 lbs. (mainly char) from Duke of York Bay which would perhaps form the basis of a commercial fishery organized out of Coral Harbour or Repulse Bay. The yield for Repulse Bay is an estimate from both inland and coastal fishing.

Caribou: It is difficult to estimate how many caribou might be taken in any settlement as this depends on a number of factors such as general availability of the caribou, access to the herds, and number of hunters hunting. The yields given in the table are somewhat arbitrary, but are consistent with past harvests and the needs of conservation. For the latter reason a low rather than a high figure has been chosen and other resources have been taken into account. At Eskimo Point, for example, whales can provide a substantial alternative source of food.

No doubt the above assumptions are open to question and different individuals would make quite contrary changes and adjustments to the yields based on different assumptions. However, our aim is not to overstate the possibilities, and at the same time have due regard for conservation. It has been pointed out that a few possible harvests have been deliberately ignored. These are summarized in Table XIV following, and Table VII (other inland lakes) on p. 37.

Table XIV Unassigned Coastal Areas

Area Portion Unassigned	Wildlife
28 Southern $\frac{1}{4}$	Seals. Fox. Fish.
31 Entire	Seals. Possibly whales.
33 Northern $\frac{3}{4}$	Seals. Fish.
34 Northern $\frac{1}{4}$	Seals. Some walrus. Whales. Fish.
	Fox. Caribou.
35 Eastern $\frac{1}{4}$ (appr.)	Seals. Whales. Narwhals. Fish. Fox. Caribou.

Subsistence food value of the Potential

So much for the estimated yields of the basic food resources, but what do these yields represent in terms of ability to feed the population. The most meaningful way to assess this is to reduce the harvests to calories and proteins. The calculations involved are simple but laborious, and the fundamental data used are shown in Appendix II. The results of this reduction are shown in Table XV.

Table XV Food Value of Local Resources

Settlement	Calorific value of Wildlife harvest (in thousands of calories)				Theoretical Population & No. Families	
	Marine Mammals	Caribou	Fish	Total	No. Families	Persons
Eskimo Point	8,274	12,060	15,827	286,161	60	300
Whale Cove	6,381	8,040	9,632	174,053	36	180
Rankin	92,739	8,040	12,622	113,401	23	115
Chesterfield	203,491	8,040	5,577	217,108	45	225
Repulse Bay	184,267	6,700	5,250	196,217	41	205
Coral Harbour	278,628	1,072	6,125	285,825	60	300
Baker Lake	-	16,080	28,798	44,878	10	50

Total theoretical population

1,400

* See pp. 111-119 for modifications to the theoretical population

It is important to state clearly what is meant by the theoretical number of families which the country food resources could sustain. This represents the number of families (each comprising two adults, one teenager, and two children under ten) which the wildlife harvest could theoretically support if these families derived their entire food requirements from the harvests. This is quite unrealistic nowadays and is modified in the course of making the second approximation.

The derivation of the annual calorie requirements of a "model" family is shown in Table XVI below. It will be seen that the ratio of calories to grams of protein is about 40-50:1. The calorie: protein ratio of the wildlife under consideration is well within this limit as can be seen from Table in the Appendix. It is not necessary, therefore, to calculate total protein yield.

Table XVI Calorie Requirements for Family of Five

Daily Requirement:	Calories	Protein grms.
Adult male	4,200	75
Adult female	2,600	50
Teenager	3,000	80
2 Children	<u>3,200</u>	<u>80</u>
	13,000	285

Annual requirement: totals x 365 = 4,745,000 calories & 104,025 grms protein

Sources: Adult male - Caloric Intake Associated with Prolonged Hard Work in the Cold, Technical Report No. EP-58, Quartermaster Research and Development Centre, Environmental Protection Research Division, Natick, Mass., U.S.A. May 1957

Others - Facts about Foods, H.J. Heinz Company of Canada Ltd., Leamington, Ontario.

As was pointed out earlier, a first approximation of the degree of over or under-population in any settlement could be obtained by comparing the theoretical population with the present population. The second approximation may be obtained by taking into account various factors which may increase or decrease the figure. To do this realistically requires consideration of the present economy and immediate prospects for each settlement. Part III which follows is devoted to this topic.

III SETTLEMENTS AND THEIR ECONOMICS

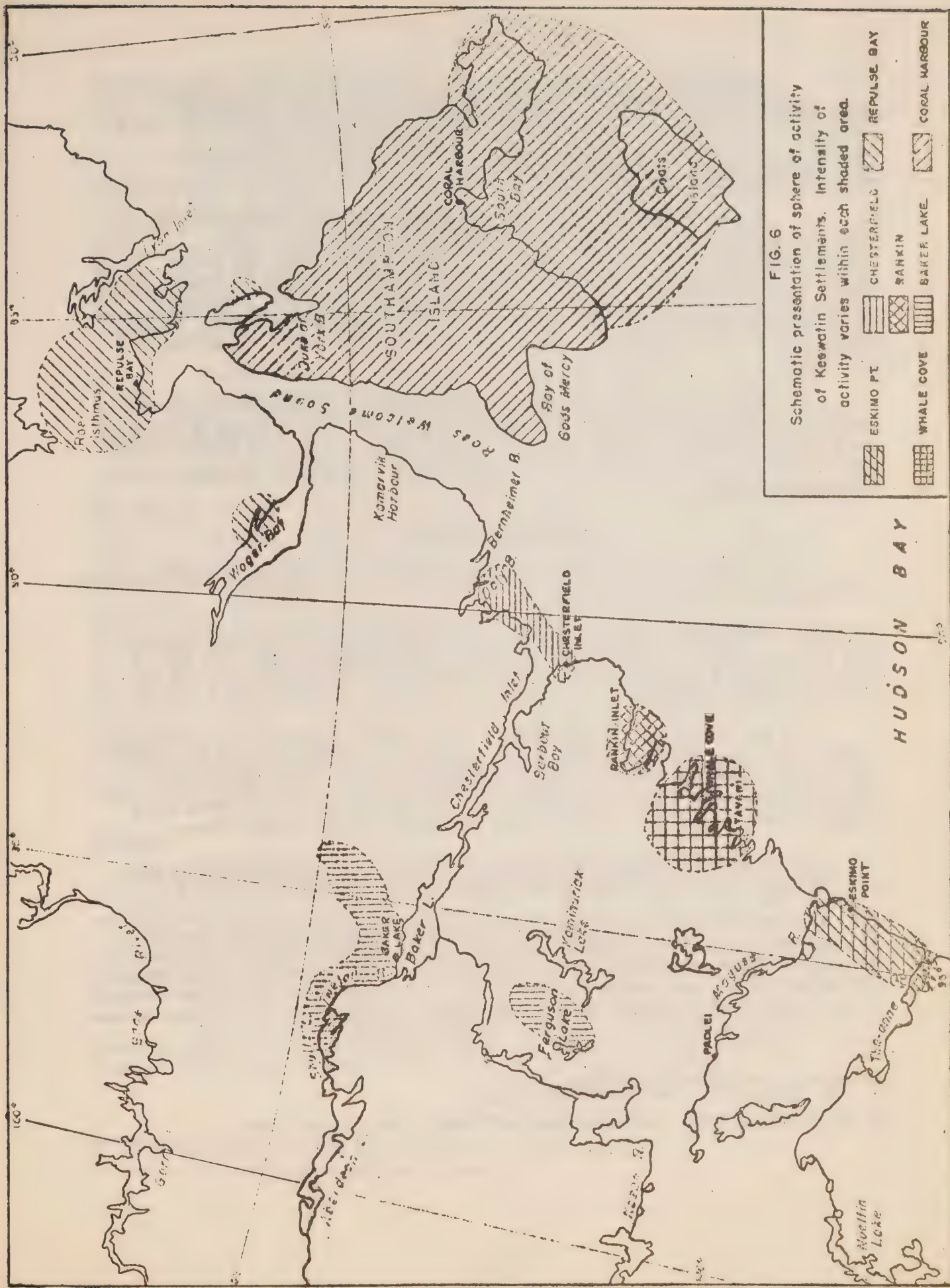
The settlements are dealt with in the following order:

- 1 Eskimo Point
- 2 Whale Cove
- 3 Chesterfield Inlet
- 4 Baker Lake
- 5 Rankin Inlet

Fig. 6 on the following page shows the approximate sphere of activity of the settlements at the present time. This map also shows the areas exploited by the people of Repulse Bay and Coral Harbour. The intensity of activity varies within each area, and some activity extends beyond the areas shown.

In Section 6 the theoretical population figures obtained in Part II are applied to the settlements to arrive at a second approximation of the degree of over- or under-population in each. This is followed by a suggested program of relocation.

Section 7 is devoted to some general topics of importance, and Section 8 comprises a brief statement on the importance of capital to settlement living.



1. Eskimo Point

The Survey spent only one week at Eskimo Point and much of this time was taken up with sorting survey equipment and arranging storage. Consequently, the following account is rather spare. A useful account of the community as it was in 1959 will be found in The Caribou Eskimo of Eskimo Point.¹

Eskimo Point is the first settlement north of Churchill on the west coast of Hudson Bay in the District of Keewatin. The settlement lies on the north side of an esker which forms the south shore of a small bay. The surrounding terrain is composed of rough rocky hills. To the south there are wet swampy lands for a distance of about two miles where the land rises into an east-west ridge. Beyond this, and to the west, the landscape is of low hills with a rocky rough surface.

There are numerous off-shore reefs along the coast and little shelter even for small craft. Suitable anchorage, with a water depth of some 18', is found $1\frac{3}{4}$ miles from the settlement. A ten foot deep channel leads into the bay in front of the settlement. Navigation of this channel requires a pilot.

Community Structure

In the summer of 1962 the Eskimo population numbered approximately 270 grouped in some 65 families.*

The population has fluctuated considerably in the last decade but seems to have stabilized in the last two or three years. In 1952-3 there were 257 Eskimos (58 families) trading into the post and of these about 90 were trappers.

The growth of the settlement has been a relatively recent event. Until about 1955 the population lived mainly in the interior, coming to the coast only to trade, or fish in the summer-time. In 1955-6 three families came over from Southampton Island, and at this time there were approximately 45 people living around the mouth of the Maguse River.

In 1956-7 a severe epidemic of measles and pneumonia occurred, and in August of 1956 73 out of 268 Eskimos X-rayed showed positive.

In 1957 about 100 people left the settlement to go to Rankin. In the same year inland people at Ennadai Lake were moved to Henik Lake but due to lack of caribou for food and the low fox population they began moving to Padlei and Eskimo Point in 1958. At this time there were another 39 men, women and children at Yathkyed Lake, and about 29 in the Padlei area.

¹ Van Stone, J.W. and Oswalt, W.; 1959

* By November, 1962, families had left Rankin for Eskimo Point.

Seventy people from Ennadia Lake moved to Rankin at about the same time. The tragedy associated with these movements during this period has been briefly described in the Introduction.

Other events contributed to the coastward movement and concentration in Eskimo Point. By 1952 a trading post at Nueltin Lake had been abandoned. Between 1955 and 1960 an army signal station at Ennadai Lake was closed down, and trading posts at the mouth of the Maguse River and Padlei were abandoned. The closing of the Padlei post was in itself partly a result of the general depopulation of the surrounding country. However, the complete absence of trading posts or stores in the hinterland of Eskimo Point now discourages Eskimos from going back inland.

The 1961 Settlement Survey showed 238 Eskimos (60 families) living at Eskimo Point and another 30 trading into the post from outlying areas. In the summer of 1962 there were no outlying camps except for two families at Sandy Point, about 45 miles north of Eskimo Point.

Certain problems arise at present from the fact that there are the two groups of Eskimos - inland and coastal - living in the settlement. There appears to be little mixing between these two groups but this may disappear in time through schooling, the churches, and a physically planned community which will bring the groups closer together. At present the inland people live apart at one end of the settlement. The coastal people appear to be better off and in higher spirits than the inland people. This is perhaps understandable in view of the hardship and distress experienced by the inland Eskimos in recent years. But we must also take into account the fact that the inland people are unfamiliar with coastal living. In an attempt to overcome this obstacle to their well-being, the Area Administrator introduced organized seal hunts last year whereby an inlander and a coastal man would go hunting together. The idea was favourably received and successful hunts were carried out. Plans are being made to continue and expand such hunts in the winter of 1962-3.

Housing

The housing situation at Eskimo Point is totally inadequate for the Eskimo population. In the summer of 1962 there were only seven of the 75 families in houses, the balance lived in tents with lean-to additions of scrap materials. These are used until snow houses can be built or they can be covered with snow for the winter. The situation would improve with the completion of seven low cost houses being put up in October.*

The resident nurse complained bitterly about the appalling housing situation and the poor condition of the tents, particularly those of the inland people at the west end of the settlement.

* November 1962 - These houses have not been occupied due to lack of power for the stoves.

In October a lot of crating and packing material left around from construction work was being carried away by the Eskimos for their own use, presumably for lean-to construction and tent reinforcing.

The Eskimo houses are wooden frame structures. The two R.C.M.P. special constables have a double house, one family in each end, and there is one DNA house.

Education

There is a two class-room Federal Day School in the settlement, established in 1959. An activity room was converted into a class-room in 1962, making the building in fact a three class-room school. There is an enrolment of about 73 pupils in grades 1 - 5 as follows:

Beginners	10
Grade 1	10
Grade 2	22
Grade 3	17
Grade 4	9
Grade 5	5

Teaching staff comprises one married couple and a single man.

Other Agencies

The R.C.M. Police maintain an office with a permanent staff of four: one married senior constable, a single junior constable, and two married Eskimo special constables. Married and single quarters are provided for the regular members of the force, but the specials provided their own. The force also maintains a large Peterhead-type patrol boat for work along the coast.

The Hudson's Bay Company post was established in the early 1920s. The store handles a wide range of foods, dry goods, and hardware. Staff consists of a married manager, a clerk and an Eskimo helper.

Three religious denominations are established in the community - the Roman Catholic Church, the Anglican Church, and the Evangelical Interior Continental Mission. The last named has acquired the abandoned Sigurdson and Martin post buildings at the Maguse River and the intention is to move these to Eskimo Point. Church membership is difficult to determine as some Eskimos attend services at more than one church. How many seek spiritual support from all three denominations is not known. In the past, membership appears to have been roughly equally divided between the Roman Catholic and the Anglican faiths.

A four-bed nursing station has been opened by Indian and Northern Health Services. The station is staffed by a registered nurse while an Eskimo and his wife assist with the caretaking and housekeeping. In October 1962 the station was not in full operation as supplies and equipment had not yet arrived. The nurse was of the opinion that without these supplies the station would probably have to close during the winter.

There are no transient quarters as such. Visitors are accommodated on a space-available basis by local residents - at inconvenience to all.

Facilities and Services

At present the R.C. and Anglican Missions and the Hudson's Bay Company have their own small generating plants. D.N.A. has two 18 K.V.A. generating plants supplying 110 volt power to their buildings and to the R.C.M.P. No power is laid into the new Eskimo houses which means that the oil stoves cannot yet be used effectively. Two 50 K.V.A. plants supplying power to the whole community are expected to be installed in the near future - which is tantamount to saying not before the summer of 1963 at the earliest.

During the summer, water is hauled in buckets from a four foot deep lake adjacent to the settlement, and in winter ice is hauled from the same lake.

Resources and Economic Activities

The main resources of the area are fox furs, marine mammals, and fish. The available figures for past harvests of various species of wildlife presented in Table XVII show that the area is quite well endowed with renewable resources.

Table XVII Wildlife Harvests - Eskimo Point

	51-52	52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62
Polar Bears			1	7	4	3	4	3	2	1	3
Foxes	1640	3678	6375	3393	3249	855	1046	1907	679	2228	1822
Weasels	57	8	36	8	5	6			10		
Wolves	22	59	131	82	115	32	31	14	2	15	22
Wolverines	5	11	24	32	17	14	5	2			5
Ringed Seal		(250)	12								
								(400)	(350)	(550)	(300)
Bearded Seals			2								
Harbour Seals			8								
White Whales						12	15				26
Caribou		4500			3028		350	1400	782	500	300
Ducks								250	200	148	
Geese								300	250	268	

Ducks and geese are approximate.

Fox

The figures suggest that the hinterland of Eskimo Point is capable of providing a fairly high fox take for enterprising trappers. Since the movement of the inland people to the coast, the fur take has declined quite markedly, although the decline cannot be attributed entirely to the shift in population. The demoralized state of the Eskimos who moved to the coast from the inland camps coupled with the loss of many of the bread-winners (see p.5) has meant a decrease in the trapper population over the last five years. More enterprising trapping involving mechanical transport and more frequent trips along the trap lines would probably result in a higher average take. At the same time, Padlei could be included in the sphere of activity of Eskimo Point and it might be possible for Eskimo trappers to be allowed to use the abandoned buildings there for shelter and storage. A well organized trapping venture could extend from Eskimo Point to Padlei to Kaminuriak Lake. More frequent trips along the lines are essential to cut down the loss through predatory activity which is high in the Eskimo Point area - c.f. the past records of wolf and wolverine takes. A large wolf denning area lies across the Northwest Territories - Manitoba border.

Marine Mammals

The seal harvest has increased in the area as a result of population concentration in Eskimo Point, but the marine mammals are under-exploited. Walrus have been sighted in the past near Tavanni, Eskimo Point, and Bibby Island, but not in large numbers and they have not been deliberately hunted along this part of the coast for many years. Harp seals have been reported from time to time. Between 40 - 100 were seen between Sentry Island and Eskimo Point in 1960, but normally they are scarce in these waters.

The main seal populations are composed of ringed seals and bearded seals with some rangers. Rangers were sighted by the Survey around the mouths of the Thlewiaza, Ferguson, and Maguse Rivers. They have been taken occasionally in the past and in 1961-2 two ranger skins were traded in the settlement. Reports from pilots flying along the coast between Eskimo Point and Churchill indicate that seals are to be found on the ice in the spring in very large numbers, and it may be that the seal population of the coast is underestimated. In June 1962, while travelling along-shore between Eskimo Point and the McConnell River, one observer counted 115 seals in four hours.* A census of these seals could be taken in the course of several flights and this would provide useful and more accurate information than is available at present.

The whaling project at the Tha-Anne River has already been described. The whale population represents one of the biggest under-exploited resources in the whole coast from the point of view of wage

* Mr. E. May, Administrator, Eskimo Point, personal communication.

employment and food production. Fuller exploitation of the whales would considerably enhance the resource base of Eskimo Point and it is to be hoped that the experiences of the summer of 1962 will spur the local people to greater efforts in future. An important by-product of the whaling project is a vast amount of waste material, much of which is suitable for dog food. The possible use of this material is discussed later.

Caribou

Records and reports indicate that the take of caribou in the hinterland of Eskimo Point have usually been high except in years when the migration routes or times have been very unusual. It would seem that the chances of finding caribou between Eskimo Point and Nueltin Lake throughout the year are good. They are usually expected to be within reach of the settlement hunters during spring and fall, and some remain in the area throughout the winter. The migration routes, of course, may change slightly, and although caribou may be in the general area their exact location may not be known to the hunters. Well-prepared and organized hunting of caribou in association with trapping and fishing could probably ensure the people's food supply from this source every year. There are ample resources at Eskimo Point for dog food and if organized hunting were coupled with improved use of the carcass and use of the marine mammal products for dog food there would be no need to use any humanly edible part of the caribou for dog food. Loss to predators through poor preservation in caches and to dogs is still much too high. Eskimo Point, however, is one of the areas in which wanton shooting and considerable waste has been reported in the past.

A large part of the present population is composed of Caribou Eskimos to whom the caribou used to be the be-all and end-all of existence. Their attitudes are probably still coloured by this cultural background, and not all have yet made the adjustment to coastal living and the exploitation of marine mammals which is now necessary.

Fish

During the summer of 1962 a few Eskimos were fishing in the bay near the settlement. This fishing was casual and spasmodic and probably not more than five nets were in the water in any one day. It is doubtful if the total fish take amounted to 5,000 lbs.

Farther up the coast, at Sandy Point, the two families living there were fishing more intensively on the coast and, in the winter, in the lakes about eight miles westward from this camp. These people dry and cache fish for both themselves and their dogs.

Measured lakes in the vicinity of Eskimo Point would appear to be capable of yielding about 85,000 lbs. and coastal fishing would probably result in a catch of about 5,000 lbs.

Sources of earnings and other income for the year 1961-2
are shown in Table XVIII .

Cash Economy

Table XVIII Sources of Earnings - Eskimo Point

Source	Income	
<u>Regular wage work</u>	\$20,400 1,750	9 recipients
<u>Casual wage work</u>		
Tha-Anne whaling project	5,000	22 recipients
D.P.W. construction and sea lift	15,000	about 20 recipients
Fox furs	19,850	
Sealskins	1,500	
Family allowances	9,168	
Welfare assistance	<u>20,907</u>	about 20 recipients
Total	\$93,575	

Source: Compiled by Area Economic Survey

Those families dependent on regular wage earnings, such as the R.C.M.P. special constables, I.N.H.S. employees, and the predator control contract employee, are essentially secure in their jobs, subject to satisfactory performance. This employment is likely to continue in the foreseeable future.

No details are available on how much construction work will be done in the settlement next summer but it seems likely that less will be earned from this source than during 1962.

1962-3 is expected to be the low phase of the fox cycle and earnings from furs may well be less than half the income of 1961-2. On the other hand, if more seals are taken, the increased prices of sealskins could raise the income from this source beyond \$5,000.

Continuation and expansion of the Tha-Anne whaling project could double the wages from this source in the summer of 1963.

If casual wage employment and income from fox furs decreases as expected without any increase in income from sealskin or other sources then the outlay in relief payments will undoubtedly increase.

Eskimo Capital Equipment

The community is rather short of capital equipment which includes 14 canoes with outboards, one Bombardier, 1 Skidoo, and one Autoboggan. There are only two larger boats in the settlement: one a Peterhead-type boat owned by the R.C.M.P., and the other a trap boat belonging to the R.C. Mission. In a community which will probably be spending more effort in hunting and netting sea mammals in future, the shortage of large boats is quite serious, and the Eskimos in the community should be informed of the facilities of the Eskimo Loan Fund and the Grant-Loan-Downpayment scheme.

Conclusions and Discussion

Until the summer of 1962, the people of Eskimo Point would seem to have been unaware of the potentialities of the large schools of whales found around the mouth of the Tha-Anne and in the vicinity of Eskimo Point itself. Whatever social or other difficulties may attend the continued exploitation of this resources, it can safely be said that the main reasons why this resource has not been exploited have been lack of technical knowledge and organization on the part of the local people. An unresolved question regarding the processed meats is where the future market is and how much it will be worth. This matter is being investigated by the Department at the present time and part of the answer lies in future developments in Keewatin. If there is going to be a large population at Rankin for some years to come engaged in wage work and other activities not based on renewable resources, this would offer a substantial local market. Frobisher Bay may also be a potential market. It is too early yet to say what value could be placed on the processed meats but assuming 10¢ per lb. then there is a potential possible cash income of over \$11,000 for the producers in addition to wages of about \$10,000.

During the fiscal year 1961-2 there was an average of 22 families per month on relief for economic reasons. In view of the variety and relative abundance of the local resources, this is clearly an anomalous situation. While it is recognized that previous hardship had a distressing effect on the morale of many of the people of Eskimo Point, there are opportunities now before these people whereby they can play a much more positive part in the organization and direction of their affairs - particularly in the field of resource harvesting.



Photo 11- Whale Cove, Peterhead anchorage at left centre.



Photo 12 - Whale Cove, looking seaward, storage shed and co-operative store in distance.

2. Whale Cove

The Settlement

The settlement of Whale Cove was started in the summer of 1959. In so far as it was established under Government supervision, it is artificial, having been established as a means of enabling Eskimos who had expressed a strong desire to try to make a living by hunting and trapping to do so on a more secure basis than they would have in dispersed camps. Behind the idea also lay the wish to introduce the Eskimos to settlement living in which they would learn to understand the need for hygiene, co-operation, and organization, in community affairs. It was to be an experiment in community living based on the resources and way of life the Eskimos know best, but incorporating where possible technical aid and encouragement of improved socio-economic organization. An ancillary, but no less important object, was to provide an opportunity for inland Eskimos to adapt to coastal living.

The site was chosen for its several favourable attributes. The floe edge is normally about $1\frac{1}{2}$ to 3 miles off, although there is at least one report of it lying as much as ten miles offshore. The Tavanni area has long been reported to be a wintering ground for caribou, herds or bands numbering up to 2000 having been recorded. Within a radius of about 30 miles of the settlement are many lakes in which fish are plentiful, and the mouth of the Wilson River is also reported to a good fishing area. Whales frequent the vicinity of Whale Cove during the summer months.

Physically, the site also has favourable features. It has a harbour suitable for cargo boats and sheltered from the prevailing NW winds. The landing beach is small, about 200 feet long, but sandy, with gentle slope, and adequate for most needs. The site of the settlement is transected by a long pond, which could be drained or filled in in the course of time. Unfortunately, there are many large boulders in the built-up area, but these detract from the appearance of the settlement rather than hindering building operations.

Generally speaking, the site is a good one, being central to the resources and having good harbourage.

The population at various times since 1959 has been reported as follows:

Table XIX Whale Cove Population

Date	Pop.	No. Families	No.	
			Individuals	
1959 Oct. 7	82	22	2	24 hunters and 58 dependents
1960 Dec. 1	117			
1961 Jan.	131			
1962 Jan.	139			
1962 July	150	35	3	

Note: The figures may include some transients. The 1962 July figure includes about 11 transients some of whom may have taken up residence.

By October 1959, eleven prefabricated houses had been built, and there were two tents and three dwellings constructed of canvas, plywood, and snow. By 1962, the housing situation was as shown in Table XX.

Table XX Whale Cove Housing

Dwelling	No.	Families	Occupants		Total
			Adults	Children	
Shacks	7	6	14	6	20
Tents	6	6	10	2	12
Rigid Frame	10	10	20	18	38
E. C. U.	11	12	26	21	47
D.N.A. 3- bdrm. house	1	1	2	3	5
R. C. Mission	1	1	2	6	8
Anglican "	1	1	2	2	4
School	1	1	2	3	5
TOTALS	38	38	78	61	139

Note: "Families" also includes individuals not associated with particular households. E. C. U. - Eskimo Camp Unit.

Source: Compiled by Area Economic Survey.

The present white population comprises two D.N.A. employees, (a teacher and a technical officer) with wives and families, a Roman

Catholic priest, and an Intercontinental Mission missionary with wife and family. The technical officer is responsible for developing and supervising various projects such as whaling and fishing. He has also had to bear the burden of much of the administrative work, but an administrative officer is to be appointed to the community in the near future.

The settlement now includes housing for the technical officer, teacher, administrator, janitor (part of the school building) and the Eskimo powerhouse operator. Other facilities include a large warehouse, the co-operative store, $3\frac{1}{2}$ KW power unit. Water is pumped from a small lake just north of the settlement in the summer-time, and there are plans to erect bulk fuel storage facilities on the southern edge of the settlement. A long-awaited freezer arrived during the summer of 1962. Finally, a D.N.A. Longliner is based in the community.

Eskimos are adequately equipped with canoes and outboards and two families own Peterheads in good condition.

Resources and Economic Activities

Although wage work makes a large contribution to the economy of the community, activities are mainly directed towards resource harvesting. The general round of activities is as follows:

- Winter: trapping, seal hunting, and caribou hunting. Seal hunting tends to be less productive during January and February. Successful caribou hunts require search over wide areas inland.
- Spring: Seal hunting increases in intensity, square-flipper being more common in the spring and early summer than later in the year. Fishing commences around break-up.
- Summer: Fishing, sealhunting, and whaling are the dominant activities during the summer.
- Fall: Fall fishing during the upstream run is an important activity; whaling continues into the early fall when the whales are becoming less plentiful; caribou hunting and sealing continue.

Other important activities include the sea-lift in the fall, a short period when most of the residents perform casual labour. After freeze-up in the fall preparation of the airstrip provides some cash income. Handicrafts are produced throughout most of the year. When the ice has thickened, blocks are cut for water supply.

To illustrate further the general nature of the resource harvesting activities, the following notes have been extracted from available records.

Fish 1960: Fishing continued through May - September. In May, it was reported that the Wilson River was yielding 20 - 30 fish of assorted species per net per day. The fish varied in size from 4 - 16 pounds. Char caught during July and August amounted to 6,000 and 10,000 lbs. respectively.

1961: 250 lbs. of Lake Trout were traded in the store in May. 1,300 char were taken in June. In July there were five fishing camps operating at the Wilson River, Tavanni, Ferguson River, and the west side of Pistol Bay. Of these, the Tavanni and Ferguson sites were poor producers. During the upstream char run in August which lasted approximately ten days 100 - 120 fish per net were lifted daily. As there was no freezer in the community at that time, fishing stopped before the run was over. It was estimated that an additional \$4,00 - \$5,00 worth of char could have been taken had there been freezer capacity to hold it.

Seals: Sealing activity for four months in 1961 is shown on the accompanying table:

	May	June	July	August	Estimate Total for year
Square - flipper	52	11	8	-	71 170
Ringed seals	31	231	47	13(netted)	322 900

During June and July, there was plenty of oil in the settlement, most of which was being conserved for winter use - a wise precaution as it was later reported that sealing in January was poor. This situation serves to emphasize that need for adequate summer organization and harvesting so that trapping can proceed unhindered through lack of dog food.

Whales: 1960: The first whales appeared in early August. Two nets were set in Hell's Gate and one between the Gate and the Cove. The total take amounted to 57 animals. Six persons were employed in the project: two tending nets, two mending and repairing gear, and two butchering and storing.

1961: The first whales appeared on July 31, earlier than the previous year. In the following ten days, three were netted and three shot. Six nets were in the water (two being kept in reserve) for 64 days. Bad weather prevented tending on all but 18 days. The total was 79 netted and 14 shot, all in the Wilson River - Tern Point - Whale Cove - Pistol Bay area.

Caribou 1959: As most men were employed in building construction during the early stages of the settlement, there was little hunting done. Ten caribou had been taken up to October. It should be noted here that when the settlement first started, there was shortage of dogs, only 23 were available in the fall of '59.

1961 May: 28 caribou were taken. Migrating caribou arrived in the vicinity of the settlement in July. The herd was scattered from the Ferguson River to the west side of Maize Lake, and bands were reported at Tavanni, Mistake Bay, Whale Cove, and Pistol Bay. 92 were taken during the month. 50 were taken in August, and at least 75 during October and November. By December, it was estimated that at least 200 had been taken, 27 of them within 3 miles of the settlement. Some of the residents have not been reluctant to make long trips in search of caribou and as an adjunct to their trapping activities. In fall, 1961, two men made a 250 mile sweep to Kaminuriak Lake and back, trapping and hunting for caribou. The trip lasted 30 days and they took 40 caribou.

Generally speaking, the choice of Whale Cove as a location central to resources, has been vindicated. Some local informants claim that there is a better site about 30 miles south of Whale Cove, but the Survey was not able to determine the exact site. However, information received suggests that the site has poor harbourage.

Cash Economy

The nature of the general economy is revealed by the figures in Table. XXI.

Table XXI Estimated Income from Various Sources

Activity	Income
Casual labour	\$ 11,467
Regular wage work	8,100
Fox pelts	11,920
Country products ¹	2,400
Handicraft	1,362
Family allowances	4,320
Public assistance	1,797
	<u>\$ 44,266</u>

¹See below for description of country products.

Source: Compiled from D.N.A. wage orders by Area Economic Survey. All figures are minimal, some entries incomplete.

Two activities not shown on the table, but which are likely to play a more important part in the life of the community in future are tourism and the processing of marine mammals. These are discussed on p.p. 50 and 120.

These figures show an average income of just over \$1200 per family. Table XXII shows the number of families receiving incomes within certain ranges:

Table XXII Income Distribution Among Families 1961-62

Income Range	Number Families Receiving
- 300	3 ¹
300 - 600	10
600 - 900	5
900 - 1200	10
1200 - 1500	2
1500 - 1800	2
1800 - 2100	2 (Includes one family with six children)
3600	1 ²
4500	1 ³

Note: 1 Includes one transient

2 D. N. A. regular employee additional \$382 from other activities

3 D. N. A. regular employee additional \$391 from other activities

Source: Compiled by Area Economic Survey. All earnings are minimal

A few points arising from the foregoing two tables deserve comment.

In spite of the fact that the major activities involve resources harvesting, wages and casual labour loom large in the economy. Income from regular and casual work, family allowances, and public assistance accounted for \$25,684 or more than half of the total income in 1961-62. This, however, does not take into account the value of country products consumed by the community during the period. Unfortunately, it is not possible at present to impute a value to country produce consumed, but figures for the period May-August 1961, indicate the importance of available country food. During this period, approximately 170 caribou were taken, indicating that approximately 14,000 pounds of meat were available to the community. Similarly, during this same period, 71 bearded seals and 322 ringed seals were taken. Clearly, the cash income does not give a true impression of the condition of the Eskimos at Whale Cove. It should, of course, be remembered that much of the country food would be used as dog food.

Public assistance payments are made to only a few individuals, and one person receives a Blind Person's Allowance. These individuals would receive assistance wherever they might be. In March 1961, the Regional Administrator noted in his report to the Administrator of the Arctic that all families at Whale Cove had been receiving standard rations since the fall of 1960 in order to help during the initial stages of the settlement's existence, and he suggested that the system should be revised to encourage the people to become as self-supporting as possible. Between September 1959 and March 1961, total relief issues amounted to \$7,809, but declined to \$1,812 between April 1961 and the end of March 1962.

Almost all the money earned by the residents is paid through, or spent in, the co-operative store (no information is available as to savings within the community). There is a small "leakage" of undetermined size to Rankin. Consequently, any profits which accrue to the store remain as a financial resource to the community. So far there has been no call for any profits to be distributed and the store has built up a small reserve.

The Co-operative Store

The store was incorporated as a co-operative in the summer of 1962 after a careful appraisal of its financial condition and future prospects by a co-operative specialist. The social implications of this are encouraging as it indicates a willingness on the part of the various Eskimo groups in the settlement to work together for the common good.

Goods are sold in the store and either exported, as in the case of fox pelts, or resold as in the case of marine oil within the community at a later date. The store also performs the normal retailing functions and stocks clothing, tobacco, foodstuffs, etc.

Some of the items included in the trading account during the four summer months in 1961 are shown in the accompanying table.

Table XXIII Examples of Items Traded in Store 1961

Item	May	June	July	August
Lake trout	25 lbs.			
Char		110 bdl's	4 bdl's	
Sealskins	2	27	57	13
Whale meat			1 brl.	
Whale fat				14 brls.
Dried Fish			551 lbs.	852 lbs.

The total value of these items to the sellers was \$2,058.

The co-operative specialist in arriving at his conclusion to recommend the formation of the co-operative envisaged a possible turnover in the near future of about \$70,000. This assessment did not take into account the recent upswing in the price of sealskins and other

improvements which may be brought about as a result of resource harvesting projects and a general improvement in the organization of the settlement's activities.

Summary

Whale Cove stands out as a bright spot in the otherwise generally gloomy Keewatin picture. This is not so because Whale Cove has been an outstanding success, not because the progress that has taken place within the community has been deliberately planned, but because it has proved that given the facilities and encouragement plus some technical help some Eskimos have been willing to make a major effort to become self-sustaining trappers and hunters. The residents of Whale Cove are not yet completely self-sustaining (in the sense of being able to provide for themselves as a result of their efforts on land and sea) but there is no doubt that there has been progress in the community - the relief figures alone prove that.

The progress of the community has not been according to some preconceived plan. On the contrary, in its initial stages, it was the object of a great deal of official anxiety, and it was undoubtedly an expensive experiment. Nevertheless, the residents now have their own co-operative; by all accounts the various Eskimo groups pull together although there is some aloofness here and there; in their work the Eskimos derive encouragement from the R.C. priest, and technical help from the Technical Officer; in spite of the fact that most of the adult males have had wage work within the industrial milieu of Rankin Inlet, they have chosen to stay in Whale Cove, and with one exception*, all those who talked with the Survey displayed no interest in leaving the settlement to go in search of wage work.

Furthermore, the community has its school, power, churches, and communication with the outside world; a background of security for individuals and their families against which they carry out their traditional activities. This is no more and no less than is the case in many other Arctic communities, but it has its unique aspects in Keewatin. Unlike Coral Harbour, where the residents are also settlement-based, hunters and trappers, the store is run by the people, which lends an element of cohesion lacking in Coral Harbour. Unlike other resource harvesting communities, such as Repulse Bay, the people are concentrated within the settlement throughout the winter. This is a definite departure from the old style of living, and in this respect, Whale Cove could be the forerunner of future community development in suitable locations. If its progress turns into success, it will have ushered in a new possibility for northern resource-based communities.

* The powerhouse operator. He was born in Igloolik and regarded Whale Cove only as a stopping-place on the way to England.

Some of the advantages which accrue to this kind of organization deserve emphasis. In the first place, the settlement operates as a market place for immediate surplus, the co-operative providing the avenue of disposal. Later resale results in an active exchange of goods for cash or credit within the community. In this way shortages can be made good at a later date. Previously, when families were scattered across the land in camps, bad luck could lead to disaster. This is most unlikely to happen in Whale Cove. Any profit from these transactions, plus the profit derived from purchases made with family allowances and public assistance remain within the community. Secondly, and still with regard to surplus, the central storage of surplus within the community means that the community is aware at the beginning of the fall how much food there will be available during the winter in addition to any further successful hunting and fishing. Thus, a surplus disposed of by one hunter to the store, can serve to help another later in the year who may have been less fortunate. There is, in effect, the possibility of an evening-out process which would never be available to a number of camps scattered through the interior and out of touch with each other for long periods. In short, dispersal across the tundra means lack of knowledge of accumulations or deficits. Previously, when Eskimos were encouraged to move away from the post, farther into the land, this was done largely in accordance with the theory that if they were spread out, more of each resource would be available to the individual camps. The reasoning was, on the face of it, sound, but failed completely (and understandably perhaps) to envisage chains of events and general lack of resources which could lead to disasters like Garry Lake and Henik Lake.

The fact that concentration of population in an area can lead to depletion of the area's resources is recognized and of the utmost importance. The present sphere of influence of Whale Cove, shown on Fig. 6, is relatively small and compact. Caribou hunting and some trapping takes place beyond the area marked, but not yet to any great extent. This matter was discussed with Whale Cove Eskimos during the survey and they appeared to be fully aware of the need for widespread harvesting to prevent depletion of the resources in the immediate area. The possibilities for increasing the sphere of activity of the community are linked with improved organization of trapping, inland fishing, and caribou hunting.



Photo 13 - Eskimo Peterheads careened at Whale Cove



Photo 14 - Whale Cove, general view of Eskimo houses.

3. Chesterfield Inlet

The settlement of Chesterfield Inlet is situated around the north-western shore of Spurrell Harbour at the south-eastern point of Chesterfield Inlet.

This is an important location, being at the entrance to the inland waterway to Baker Lake, and relatively central to other Keewatin areas and settlements. In 1922 Chesterfield and Eskimo Point were the only settlements on the coast. Two of the three organizations in the community at the present time are there partly because of the location. The D.O.T. meteorological station is one of three in Keewatin, the other two being the inland station at Baker Lake, and the insular station at Coral Harbour. The coastal station at Chesterfield lies almost mid-way between the other two. The large school is convenient to the sea route for supplies and accessible by air from the other Keewatin settlements and settlements as far away as Igloolik and Pelly Bay.

The surrounding glaciated terrain is low and rolling, characterized by exposed shield rock formations and containing numerous depressions, ponds, and sloughs. Vegetation is scant except around ponds, in depressions, and along water courses.

The coastline consists of barren granite rocks, numerous off-shore reefs, and a tidal flat extending about 600 feet. These reefs and shoals are a hazard to navigation, and small boats must proceed close inshore with care.

Community Structure

The settlement was founded by the Hudson's Bay Company, who set up what was intended to be a temporary trading post in 1910. By 1912 a Roman Catholic Mission and an R.C.M. Police post had been established and the settlement became permanent.

The present population of 72 is considerably less than it used to be. In 1952 and 1954 it was estimated that there were 246 and 220 Eskimos, respectively, trading into the post. In 1956 the population was estimated at 306, but this figure may have included school children from other districts. With the development of the Rankin Nickel Mine increasing numbers went there from Chesterfield in search of work and other opportunities, and by 1957 it was reported that 192 people had left Chesterfield for Rankin. Since that time the population seems to have stabilized at 70 - 80. In the summer of 1962 the population comprised 72 individuals grouped in 17 families. An additional 12 old or infirm persons live in the hospital.

From 1947 to 1956 six families traded into Chesterfield from Depot Island in the Daly Bay area. They lived near Cape Fullerton in two wooden houses which are still there. Another five families lived in the Barbour Bay - Cross Bay area, trading into Chesterfield and Baker Lake. The present whereabouts of all these families is not known but they are almost certainly living in the other coastal settlements.

With one exception the Eskimo population is of the Roman Catholic faith and the Mission is a well established force in the community. Attached to the Mission are three Fathers, three Brothers and 15 Sisters. Besides attending to the spiritual needs of the Eskimos, they operate the hospital, supervise the hostel for school children from other settlements, assist in teaching, and take active part in other community affairs.

The Mission operates a large 24-bed hospital. There is no doctor and the nursing staff consists of two Sisters. Twelve aged or infirm individuals are under the permanent care of this hospital.

The four-room school is staffed by four teachers, two of whom are Roman Catholic Sisters. The enrollment for the 1962-63 session is about 117, of whom about 80 are from Repulse Bay, Igloolik, and Pelly Bay. The enrollment also includes ten children of D.O.T. and R.C.M.P. employees. Classes include grades one to six, but consideration is being given to the teaching of higher grades in the near future.

The Hudson's Bay Company post was closed a few years ago. A small commissary is now operated by the R.C. Mission in its own buildings. For the present this meets the needs of the Eskimos adequately.

The R.C.M. Police maintains a detachment consisting of one senior constable and two local special constables, one of whom is Eskimo. The detachment has a well equipped Peterhead patrol boat.

The R.C. Mission has the only facilities for transients and can accommodate ten. The rates are usually \$10 per night and \$2 per meal.

For entertainment there is usually a film shown on Friday and Saturday nights in the school or Mission. These are organized either by one of the Brothers or D.O.T. personnel. Women and children usually attend on Fridays, and adults without children on Saturdays. To cover freight and rentals of the films there is a \$1.00 admission fee on Saturdays, but there is no charge to the Eskimos on Fridays.

Housing and Facilities

In terms of the total population the housing is inadequate. The 17 families occupy;

- 4 houses of D.N.A. design
- 2 other private houses
- 4 houses provided by the R.C. Mission
- 1 provided by D.O.T.
- 2 shacks and 2 tents

These figures suggest that there must be overcrowding during the winter.

By agreement, the R.C. Mission and D.N.A. operate a 110 volt diesel power unit which supplies the Mission, the hostel, and the Federal School. At present D.O.T. and the R.C.M. Police operate their own units - a 110 volt diesel plant, and a 32 volt plant, respectively. There are plans to connect the two supplies in future.

Water in summer (and ice blocks in winter) is obtained from nearby lakes. The Mission pumps water and stores ice from Mission Lake, while the R.C.M. Police and D.O.T. haul their supplies by tractor and trailer from Police Lake.

Sewage and garbage disposal facilities are handled in a variety of ways. The R.C. Mission, the hospital and the hostel have flushing facilities into the bay during the summer, but during the winter chemical closets are used. D.O.T. and the R.C.M. Police use chemical closets throughout the year; their garbage is hauled away and burned with waste oil.

Resources and Economic Activities

Resources

Available figures for the take of various species of wildlife are presented in Table XXIV .

Table XXIV Wildlife Statistics Chesterfield 1950-62

Species	51-52	52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62
Polar bears	3	5	3	3						3	3
Foxes	414	433	446	698	500	108	299	503	15	140	473
Weasels	32			6	1						
Wolves	5	12	9			2	3				1
Wolverines											
Caribou		1000			806	600	6	2	20	42	35
Ptarmigan											80
Ringed seals		900									180
Bearded seals		50									20
Harbour seals											2
Beluga		20	12	43		8-10	40	4			
Walrus				2						18	

Although the figures are incomplete it would appear that there has been a marked decrease in resource harvesting over the last ten years and this is confirmed by information from local sources. Blanks in the table should not be taken to indicate no take at all for the year and species concerned, but rather that there is no information for that year. For example, the families at Daly Bay in the early 1950's must have taken numbers of marine

mammals which are not shown in the table.

The decline in resource harvesting is due to several factors. Foremost among these is the fact of the emigration of population. Secondly, the remaining population has been engaged mainly in regular wage employment since the mid-1950's and have hunted and trapped only casually in the last six or seven years. Whether a general decline in foxes and caribou numbers has contributed to the decreased take of these animals is not certain.

Caribou

It would seem from various reports that these animals have never been very abundant in the area. Loughrey estimated 7,400 and 1,560 caribou on the Barrens north and south of Chesterfield during his survey in 1955. A 5% take would allow a harvest of about 450 animals per year. It is likely that because of the barren nature of the country in these parts the caribou are widely dispersed and difficult quarries. The 20 caribou taken in 1959 were all taken in the vicinity of Daly Bay.

Foxes

The fox take for 1961-62 was higher than had been for some years, and may be attributed to the high phase of the fox cycle in the area. The low phase occurred in 1959-60 according to the R.C.M. Police report for that year. The low take for 1956-57 would appear to have been due to a large degree to the fact that an influenza epidemic occurred in the settlement in the late summer and early fall of 1956. As a result of this, several people died, several families had to be evacuated to hospital, and the whole population was debilitated. Consequently, many dogs starved, some were shot, and the Eskimos entered the fox season with poor dog teams which did not permit intensive trapping. Nowadays the school children at Chesterfield have their own trap lines and they accounted for 100 of the pelts which were traded in 1961-62. The "school" trap lines are laid out in the vicinity of the settlement, which indicates that more trapping farther afield could well have resulted in a much higher total take.

While it would be unwise to assert that caribou and fox are abundant it would seem evident that these animals are under-exploited at the present time.

Polar Bears

Polar bears are seen and taken only infrequently in the area and do not make a significant contribution either to subsistence or cash income.

Wolves

These are scarce in the Chesterfield area although they are thought to be more numerous farther west in areas of good caribou habitat. Only one was taken at Chesterfield in 1961-62.

Arctic Hare

From information obtained from the R.C.M. Police, local Eskimos, and licence returns, the Arctic hare was very scarce during the winter of

1961-62. When available they are killed for food, and the fur used for clothing trim, and their utilization is exclusively local - no sales.

Birdlife

Ducks, (eiders, pintails, old squaws and guillemots) are plentiful in the area, but not exploited. Geese are plentiful during the spring migration; in the fall most of them have left the area before the season opens (September 1) with the result that few are taken. In the 1961 season the kill consisted of 85 Canada and Lesser Canadas, and nine snow geese. Ptarmigan vary from year to year and were apparently scarce during 1961-62, only 80 being reported killed. These are used for domestic consumption.

Fish

Arctic char are plentiful in the vicinity of Chesterfield. The R.C. Mission catches about 3,000 - 4,000 lbs. annually, most of which is frozen for use in the hostel. This fishing is done in August by the Mission's regular employees, the nets being supplied by the Mission. In 1962 eighteen nets caught 1,000 char (about 3,000 lbs.) in one month. Assuming the nets were checked twice daily this represents about 1,080 units of effort and a catch of approximately 3 lbs. per unit of effort. This is not high, and in fact, the Mission considered it to be a lower yield than normal. Also, the catch was taken within two miles of the settlement. The Mission intends to change their system in 1963 and give nets to more fishermen, purchasing all the fish that is brought in. This way they hope to obtain adequate supplies within a shorter time period. The size of nets varies slightly, but averages about 125' long, 6' deep, and 4" mesh. Little fishing is done by the Eskimos for their own use, perhaps 500 lbs. being taken annually from nets set out from the settlement.

Lake trout are found in the inland lakes in the vicinity of the settlement. Checker Lake, about 10 miles from the settlement, is reported to be fished regularly and yields trout in the 15. lb. class.

In one day this spring, one man, jigging, caught over 100 trout in a lake in from Severn Harbour, approximately 20 miles from the settlement.

Other fish found in the area include grayling, cod and tullibee, all of which were caught by the survey during test netting. The tullibee were caught in Barbour Bay. These species are present only in minor quantities.

Seals

Seals are not exploited as much as they could be. Although no figures were available at the time of the survey's visit, an estimated 200 were taken from July 1, 1961, to June 30, 1962. Most of these were ringed seals (180), a few bearded (20), and very few harbour (2). Seals are utilized largely for dog food, very little for human consumption. A few hides are used for clothing, and some skins were sold during the last year. It is believed some seals were killed just for sport, or wanton killing, as several were found on the beach left to decay or be eaten by dogs or gulls.

Walrus are not found in the vicinity of the settlement as a general rule, but are thought to visit certain localities a little farther afield regularly. They are believed to frequent Depot Island in the late spring every year. About 200 were seen and 18 killed there in the spring of 1961. It is thought that they may also return to the same area in the late fall. They have occasionally been reported 5-10 miles out from Chesterfield off the floe edge. A spring hunt to Depot Island would probably result in a bag of 10 or 12 animals, but because of ice conditions, travel would have to go by dog team, the hunters returning to the settlement after break-up. Alternatively, a large whale boat or Peterhead might be wintered in the Daly Bay area for use in resource harvesting during the summer.

Whales

These are not hunted to any extent except when they come right into the harbour. They are, however, reported to frequent the entrance of Chesterfield Inlet throughout the summer from July to September. There is little doubt that whales could be the object of an organized harvesting project.

Cash Economy

About two-thirds of the total community income for 1961-62 was derived from regular or part-time wage work. Three families appeared to have no known source of cash income and presumably gained some subsistence from the local resources and help from relatives.

The income from all sources as ascertained by the Survey is shown in Table XXV .

Table XXV Cash Income, Chesterfield

Source	Number Employees	Rate per year	Income	Total
R.C. Mission	4 full-time	\$3,000	\$12,000	
" "	2 part-time	1,000	2,000	
D.O.T.	2 full-time	2,400	4,800	
R.C.M. Police	1 full-time	3,000	3,000	
Pilot (ship)	1 seasonal	1,000	1,000	
Total wage income				\$22,800
Welfare assistance (four families)				3,221
Family allowances				2,904
Trapping	casual			3,729
Total Income				\$32,654

Source: Compiled by Area Economic Survey

The situation revealed by the table calls for little comment. The wage-workers would appear to be secure in their employment and by casual hunting and trapping add a little to their sustenance. There is no significant handicraft production at Chesterfield. One man produces a few carvings per year which find a local market.

Summary & Discussion

If the Daly-Bernheimer Bay area is included it may be said that the resources of Chesterfield are underexploited. The settlement is accessible to a large coastal area in which marine mammals and fish are relatively abundant. While the area is perhaps not rich in caribou and foxes, there is little doubt that these could contribute more to subsistence and cash incomes than they do at present, but due to the fact that the bulk of the population derives its income from wage work hunting and trapping are only casual activities.

The area affords a good opportunity for resettlement or relocation of people from less favourable areas, particularly Rankin Inlet or Baker Lake and it is in this light that the settlement should be viewed.



Photo 15 - Chesterfield Inlet, general view of Mission buildings.

4. Baker Lake *

Baker Lake, the only inland settlement in Keewatin, lies on the northwest shore of the lake from which it takes its name about 180 miles from the sea. The inland location of the settlement is of the utmost significance as it means that the residents do not have ready access to the marine resources of the coast.

Baker Lake is outstanding in Keewatin in that it has a full "complement" of organizations, as can be seen from the following list:

Government of Canada:- Department of Northern Affairs - Administration
- Federal School
Department of Transport - Meteorological
- Aviation
Indian and Northern Health Services
Royal Canadian Mounted Police - Sub-division
Headquarters.

Other Organizations:- Anglican and Roman Catholic churches both with resident clergymen.

Hudson's Bay Company.

In the last ten years the surrounding area has become almost depopulated. Families from Garry Lake and the Back River were evacuated after their period of hardship to Baker Lake and other Keewatin settlements. Schools, churches, the store, and the opportunity for casual labour have all attracted people to the settlement until today only about a dozen families are living on the tundra in camps.

Population

The population of the Baker Lake area (which includes camp families trading into the settlement) has fluctuated over the last ten years from less than 400 to nearly 500. An estimate made in the summer of 1962 yielded a population of 499 grouped in 100 families of which 11 were headed by widows.

According to Canon James¹ of the Anglican Mission in Baker an eastward shift of population had already started before the 1950's. Hunters trading into Baker used to camp all the way to the boundary of the Mackenzie District. It is felt that they began moving eastward originally in order to be nearer the post at Baker, and subsequently the establishment of the Thelon Game Sanctuary closed that part of the country to the hunters.

Up to 1958 about 20 families lived along the Back R. and in the vicinity of Garry Lake. A trip from Garry Lake to Baker involved about

¹ Personal communication

* For a comprehensive account of Baker Lake in recent years see: Vallee, F.; 1962.

4-5 days' travel by dog team and these people sometimes preferred to go to Chantrey Inlet which took about three days. During the summer most of these families would go to the mouth of the Back R. to fish and hunt seals, returning inland in the autumn. Carry Lake is reported to be a good fishing area and the sandhills to the south of the lake are excellent fox habitat. This area is now depopulated of humans after the disasters of the 1958 winter.

Since 1958 the movement into Baker Lake has intensified until today most of the families are settlement based. In February, 1962, there were only eight outlying camps containing twelve families and five individual hunters, about 56 people in all. In February, 1961, 151 people occupied camps; 86 remaining on the land all winter, 76 for most of the winter.

The knowledge that the government will look after the people and the possibility for wage work coupled with the attractions of the store, churches, and school, all militate against the people taking up camp life in the winter time. This is unfortunate since at the present level of organization the resources of the nearby countryside are inadequate to provide such a large concentration of people with sustenance and cash income. One large fox den to the southwest of Baker has in fact been completely cleaned out as a result of too intensive trapping¹.

Housing

In the summer, 1962, many of the Eskimos in the settlement were living in tents, and there were insufficient houses to accommodate them in the winter. Many families occupy houses made available by employers as will be seen from the accompanying table:

Table XXVI Number of families in houses

D.O.T. Employees	5 families
R.C.M.P. employees	2
Hudson Bay Co. employees	2
Anglican Mission employee	1
D.N.A. - School employee	1
General assistant	1
Janitor	1 (half of school building)
Hostel	2 (two hostel mothers with families)
Welfare houses (D.N.A.)	9
Eskimo houses (private)	2

Thus, even though rent is paid for accommodation, permanent employment tends to carry the additional prerequisite of housing. Notably, however, more than half the population dwells in snow houses during the winter, and there is no doubt overcrowding within the available houses due to members of the "extended family" seeking shelter.

¹ Mr. A. McPherson, C.W.S. personal communication.

In addition to these dwellings there are about a dozen wooden shacks constructed by Eskimos out of scrap material.

Resource and Economic Activities

The main renewable resources for the Baker Lake area are fox, caribou and fish. Birds, hare, bears and other fauna make only minor contribution to the food supply.

Fox

The fox take in the past ten years is shown in Table I p. 14. 1960-61 was considered to be the peak of the cycle, and it was expected that the take in 1961-62 would be about 1,200-1,500, lower than that for 1960-61, but higher than average. As it turned out the take was only 858, largely due to the fact that little trapping was done. There seemed little hope that the 1962-63 situation would show any improvement, as it is expected to be the nadir of the fox cycle.

Apart from the fact that little trapping was done during the season, the Hudson's Bay Company manager informed the survey that many trappers were not cleaning and drying their pelts adequately. In extreme cases trappers delivered whole carcasses to the store which faced the trader with the choice either of refusing them, or accepting them at a much reduced price and hiring women to clean them.

One effect of the concentration of population has been the depletion of foxes within the vicinity of the settlement with the result that settlement Eskimos have to range far to set their traps. The loss to predators is not known, but is estimated to amount in some cases to 50% of the total take.

Caribou

The general situation with regard to caribou in Keewatin has already been discussed and available records relating to Baker Lake add little to the previous discussion.

Generally, the biggest harvest in the area is in the fall. Some of the settlement Eskimos hunt caribou in close to the settlement, but in the last few years the bulk of the harvest has been taken by camp Eskimos. Kelsall¹ suggested that the low kill of (147) was partly due to the conservation education, but the kill of 1961-62 (3,650) suggests that some of this education has worn off. Data for the past decade are incomplete, but the figures in Table V suggest that whereas the number of caribou killed in the Baker Lake have numbered in the thousands in the past, they seem to have levelled off at between 1,500 and 3,500.

How much wanton killing or careless wounding occurs is not known. Opinions among local informants vary. One white resident has suggested that 80% of the caribou hit by bullets eventually become wolf bait. If this is true, then the actual kill has amounted to about 8,000 per year for the last few years, which seems unlikely.

¹ Kelsall, J.P.; 1960

In their migration the herds normally follow the Kazan River to its mouth at Baker Lake and cross the Thelon east of Schultz Lake. Drownings are apparently quite frequent during this crossing. The migration route may, of course, change. In 1959 caribou were generally scarce and they are thought to have made their river crossing much farther west than usual.

Fish

Lake trout and whitefish are relatively abundant in the area while char are more scarce. Certain fishing grounds have been well known for a long time - Kikitaya, across the lake from the settlement is fished every year by the R.C.M.P.; the mouths of the Kazan and Prince Rivers are considered to be good fishing areas during May and June; Aberdeen and Schultz Lake to the west are known to yield fish in quantity; Garry Lake is considered to have abundant fish stocks; and most of the other lakes in the area are known to have fish stocks. Outlying camps are usually located on lake shores where fish can be caught.

There is little quantitative data on fish catches. In 1959 a D.N.A. technical officer carried out test fishing at the east end of the lake. Between June 9 and September 15 he caught 923 char, 2,878 trout, 792 whitefish, and 77 grayling (approximately 15,000 lbs. of fish). During the same summer Eskimos were estimated to have taken 12,500 lbs. Also in the summer of 1959 two members of the Fisheries Research Board working west of the settlement caught 2,400 fish at Schultz Lake and about 400 at Aberdeen Lake. In 1961 and 1962 the R.C.M.P. took approximately 3,500 lbs. and 5,000 lbs. respectively at Kikitaya from the first week in July until mid-August.

In July 1962 one member of the Survey caught 15 lbs. of fish in $\frac{3}{4}$ of an hour by drift netting near Kikitaya. The method used was simply to secure one end of a net to the prow of the canoe and drift with the current. Unfortunately in the short time the Survey was at Baker, ice conditions prevented intensive netting at other locations.

While the figures available are insufficient to allow a firm estimate of the quantity of fish which might be taken from the Lake, 50,000 lbs. (including lakes immediately to west and north) would seem to be reasonable.

The organization of fall and winter fishing could be aligned with mechanized trapping as set out in p. 56 and extension of mechanized trapping to the Garry Lake area would allow the fish potential of that area to be exploited also.

Eskimo Capital Equipment

Twenty-eight individuals own 32 canoes ranging in size from 18 to 22 feet. Most of these canoes have outboard motors. Other Eskimo boats include a 25 foot cabin boat and a Peterhead; in addition D.N.A. maintains a 25 foot cabin boat with inboard engine.

Sources of Income

Estimated total income for various years is shown in Table XXVII, and a graphic comparison between income from fox furs, wage work, and two classes of social payments is presented in Fig 7 on p. 97.

Table XXVII. Sources of Income

SOURCE	1951-2 ¹	Year 1952-3 ¹	1958-9 ²	1960-1 ³	1961-2 ³
	\$	\$	\$	\$	\$
Fox furs	13917	7872	6500	24141	4531
<u>Wages</u>	1560	1600	32000	70966	75991
Handicraft			700	227	5136
Hire of dogs etc.				72	175
Projects				2229	
<u>Social payments</u>					
Family allowances, pensions, boarding	8849	19830	23000	26075	23337
<u>Relief: clothing, direct issue, and work</u>	673	409	13410	39881	55591
TOTALS	24999	29711	75610	163591	164761

Sources: 1 Unpublished data, Territorial Div. Dept. of Northern Affairs and National Resources.

2 Vallee, F.: 1962

3 Compiled by Area Economic Survey

Wage work is the largest single source of cash income, having accounted for more than half of the total cash income in the last two years. There are three categories of wage work: regular, casual, and public contract, of which the first is the most important as can be seen from Table XXVII on p. 98.

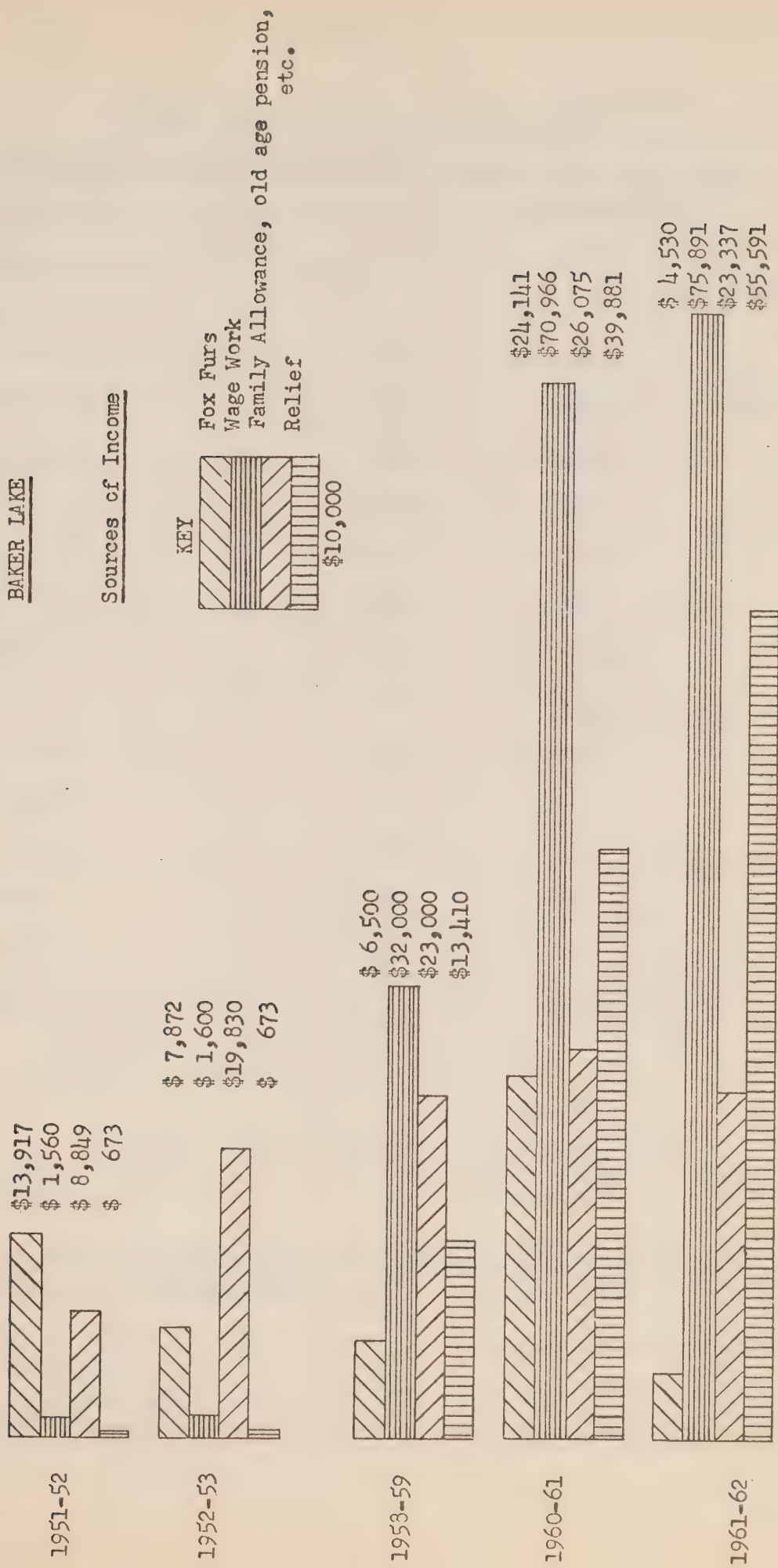


Fig. 7 Comparison between income from fox furs, wage work, family allowances, and relief at Baker Lake.

Table XXVIII Earnings from Wage Work 1960-62

Nature of Work	Earnings per Year in dollars		No. receiving
	1960-1	1961-2	
Regular employment	36,000	37,980	15
Public contract	3,600	4,725	5
Casual	29,065	33,811	

SOURCE: Compiled by Area Economic Survey

Perhaps the most outstanding feature of the above table is the fact that about 15% of the families receive about 55% of the wage earnings, the remainder being shared by the rest of the adult community.

The structure of employment is shown in Table XXIX. D.N.A. is normally the largest employer of casual labour. Of the sum paid out in 1961-62, D.N.A. paid over \$20,000, D.O.T. \$3,000 and H.B. Co. about \$1,000. The amounts paid by each organization fluctuate from year to year, D.O.T. and H.B. Co. being relatively more constant than D.N.A. Wage work may be expected to remain at about the same magnitude over the next few years except that the Government economy program may result in a decrease. D.N.A. expenditure for 1962-3 has been estimated at \$21,000, a figure subject to review.

Relatively small amounts are earned from the hire of equipment such as canoes, dog teams, etc.

Handicraft has been encouraged in recent years. During the winter of 1961-2 a handicraft specialist worked in the community and as a result there was a substantial increase in handicraft production and value. Whereas during 1960-61, and 1961-62 handicraft production amounted to only a few hundred dollars, in 1961-62 it contributed \$5136 to community earnings. In the absence of a specialist to guide the craft workers income from this source will probably decline*.

The significant drop in earnings from fox furs was due mainly to the fact that there were few trappers active. In 1961 the anticipated take for 1962 was 1200-1500, which, had it been achieved would have resulted in a return of more than \$12,000.

Relief payments have more than quadrupled during the last three years and in the absence of expanded employment or resources harvesting opportunities these payments may be expected to rise rather than decrease.

Plans have been made to hire two specialists for work in Kooxstin during 1962.

Table XXIX Employment Structure 1962

Nature of work and employer	No. employed	Rate of Pay \$	Total Payments \$
<u>Regular:</u>			
Dept. of Northern Aff.	2	200	4,800
Dept. of Transport	1	40	480
	5	300	18,000
I.N.H.S.	1	200	2,400
	1	145	1,740
R.C.M.P.	2	310	7,440
H.B. Company	1	175	2,100
	1	75	900
Anglican Mission	1	30	360
<u>Public Contract:</u>			
Predator control	1	250	1,500 6 month period
Hostel mother	2	50	1,200 12 month period
Teacher's aid	1	75	675 9 month period
School cook	1	65	maximum of \$650
<u>Casual:</u>			
D.N.A.			27,400
D.O.T.			3,500
H.B.C. (sea lift)			1,100

Source: Compiled by Area Economic Survey

The tables of income, and Fig. 7 show that all social payments (family allowances, pensions, public assistance, etc.) contributed nearly \$80,000 to the community's income in 1962 - more than was received from wage work

and about 20 times as much as was received from fox furs.

It has been estimated that during 1961-62 an average of 51 families received public assistance and of these 42 families received assistance for economic reasons. In this respect there has been a rising trend in recent years and there is little prospect of a decline in the near future unless the Eskimos themselves are motivated and willing to make an effort to gain a larger measure of sustenance from the local resource and spread their resource harvesting activities over a very wide area.

Summary and Conclusion

The resources of Baker Lake are less varied and less abundant than the coastal areas of Keewatin and although they can be used much more effectively than at present, they are meagre in relation to the population's needs. The caribou kill although high from the standpoint of conservation contributes only indirectly to the sustenance of the people - a major part of it is used for dog food. This situation could be changed in two ways: firstly, by more intensive fishing for dog food, and secondly by cutting down the dog population and using mechanized transport instead. If the dog population were to be radically reduced and more use made of fish, caribou hunting could probably be so organized that less than 1,000 animals per year would be sufficient for the community's needs from this source.

The Survey believes that a significant step could be taken in this direction by the R.C.M.P. The use of mechanized transport by the Police would set a useful example to the Eskimos and at the same time release a large quantity of fish for human consumption.

The fox population is capable of providing a greater income to the community, but trapping will have to be more widespread. Dens near the settlement have been completely depopulated of foxes. Trapping to the Garry Lake area would probably be a profitable activity except during the low phase of the cycle. But trapping northward from the settlement should be organized with due regard to security of the trappers, and would require much better co-ordinated efforts among the trappers than has hitherto been the case. Loss through predators is still relatively high and can best be cut down by more trips along the trapline.

Those Eskimos engaged in regular (including public contract) work would appear to be secure in their jobs, but there are no indications that there will be an increase in the number of jobs available in the next few years.

An addition to the food supply could be made by horticulture. The school teacher has demonstrated the principles of growing plants to the school children and these efforts should be followed through. The situation at Baker Lake warrants the investigation of the horticultural possibilities by an expert. A medium scale experiment which would justify the hiring of a summer student (agricultural) to organize and manage it would probably be preferably to the erection of one small greenhouse.

Handicraft production could be expanded and it is assumed that promotion of this activity will continue.

Plans for tourism have already been formulated and will no doubt be brought into effect in the near future.

Underlying and aggravating the Baker Lake situation is the matter of public assistance. In recent years it has been relatively easy to obtain assistance, and the demoralized state of many of the local people plus the distress caused by caribou decline and fox cycles has made a high assistance bill to some extent unavoidable. The present camp-based population is not entirely self-sustaining, as most of the families receive some measure of financial help. However, the assistance has had unfortunate side effects in that it has tended to reduce individual motivation to be more self-supporting. Vallee has expressed the matter in these words:

' There is evidence that some land people resent and deplore the relative wealth of the settlement folk. As one Kabloona put it when reporting that certain prominent Eskimos from the land were expressing such resentment:

"What do you expect? You get a man coming in from the land after breaking his back for months just to get something to eat. He might be practically in rags, and what does he see when he gets here? He sees Nick and some of these other characters zooming around in their 18-horsepower kickers (motorboats) like they were Cadillacs. They're all dolled up and full of good grub. And where do they get the money? From emptying honey buckets for the Whites and mostly sitting on their butts--no sweat for them. Can you blame them for thinking twice about going back to the land?" '

(Vallee, F.; 1962, p.48)

To break this relief-begets-relief circle will require intensive and sustained efforts to persuade the Eskimos that their resources are capable of a greater contribution to their general welfare. Technical, financial, and educational help will be needed over a period of years. It is important to note that many of the Eskimos are not themselves happy about the situation. During the Survey a group of Garry Lake Eskimos expressed dissatisfaction with the state of affairs in Baker Lake. They seemed to recognize that they were in danger of losing much of their sense of purpose in life. They gave the impression that they would like to go back to Garry Lake, but felt that the Government did not wish them to do so.

In the light of recent experience, and in view of the pre-conditions necessary for the future socio-economic progress of the Keewatin people, total re-dispersal is not recommended. Relocation of some of the coastal areas offers the best solution in the near future, and the possibilities for this should be brought to the attention of the people at Baker Lake.

5. Rankin Inlet

The discussion on Rankin presented below is less detailed than has been presented in the case of the foregoing settlements. This is justified mainly because the situation at Rankin is in a state of extreme uncertainty, and change. With the closing of the mine there is practically no economy. A few men are hunting and trapping and about a dozen are engaged in regular employment. By November there were 40 able-bodied heads of families on public assistance who will remain so unless there is a massive emigration movement or unless projects are established to enable them to be more self-sustaining.

The Mine

Rankin Inlet represents Keewatin's first and, so far, only experience of modern mining.

A comprehensive account of the mine will be found in "The Eskimos of Rankin Inlet" which describes in detail the reaction of Eskimo employees to this kind of industrial milieu.

The ore body was discovered in 1928 but further exploration and development work was not pursued until 1951-2 when geophysical work was undertaken to trace the extent of the deposit. In 1953 a vertical shaft was sunk but financial difficulties hindered continued development until 1956. In 1957 the North Rankin Nickel Mines Limited came into production and remained in operation until October 1962 when the mine closed due to exhaustion of economic ore.

A policy of employing Eskimos was adopted early and subsequently the mine employed an average of 60-80 men and one or two women. These were recruited from every community in Keewatin. Some settled down to steady work, took training, and became competent at relatively skilled jobs; while some even after training abandoned the work and returned to their original settlements or went to other communities, or stayed in Rankin. Others came only in search of temporary employment, and still others came to "squat" and live on public assistance or handouts from relatives or friends. A few worked part time in the mine to augment income from hunting and trapping. In the five years of the mine's existence a large community came into being where none had existed before.

The mine complex included headframe, mill, concentrator, an airstrip within a few miles of the mine, tying-up facilities for ore boats within a mile of the mine, staff accommodation, dining and recreation facilities. Other agencies and organizations came in quick succession including D.N.A., the R.C.M. Police, I.N.H.S. the Hudson's Bay Company, and Anglican, Roman Catholic, and Intercontinental Missions.

Federal schools were established and Eskimo housing built, All these, of course, brought in their wake additional housing and other buildings. The end result today is a concentration of people and an agglomeration of real estate the raison d'etre of which has disappeared.



Photo 16 - General view of the Rankin mine.

Part of the D.N.A. complex included a smaller settlement known as Itivia, directed by a welfare officer and lying a little way from the mine settlement. This was originally set up as a rehabilitation and training centre for Eskimos and has since been moved into the mine settlement.

In 1959 the Eskimo population was 332, of whom 224 came from Chesterfield and the remainder from other Keewatin communities. By January of 1962 the population was over 500. Since break-up of 1962 a small scale emigration has started. 3 men have gone to work in the mine at Tungsten near the Yukon N.W.T. boundary, 2 to the DEW Line, and 1 to work for I.N.H.S. at Eskimo Point. 4 families have left for Chesterfield, 7 for Eskimo Point, 4 for Whale Cove, and 2 for Baker Lake. Two individuals have also gone to Baker Lake. The move to Baker Lake was made in spite of efforts to dissuade the Eskimos involved. In addition, one family headed by a widow, has gone to Repulse where the widow intends to remarry.

By November 1962 there were 438 Eskimos grouped in 81 families left in Rankin and accommodated in 68 houses, 14 of which were mine houses, the remainder being mainly welfare houses or low cost houses of D.N.A. design.

The effect of the shut down of the mine on the local economy can be judged from the following figures. Table XXX shows the monthly

net income of the Eskimo mine workers during four months in 1958.

TableXXX Monthly net income for Eskimo mine workers

1958		Skilled	Unskilled
March	Highest net income	\$592.08	\$210.53
	Lowest net income	114.98	31.38
	Mean	227.58	134.79
May	Highest net income	453.58	235.59
	Lowest net income	132.56	19.13
	Mean	246.36	119.69
June	Highest net income	556.83	257.54
	Lowest net income	54.86	9.50
	Mean	229.51	108.28
July	Highest net income	484.73	167.23
	Lowest net income	85.93	24.75
	Mean	240.01	112.31

During the period indicated, out of an Eskimo work force of 72 there were 19 in skilled trades. In addition there was an Eskimo foreman on a salary of \$300 per month, and a watchman on a salary of \$250

Source: Dailey, R.C. & L.A., 1961

For the period July 1-15, 1962 the two highest and two lowest take home pays of Eskimo miners were \$358.48 and \$312.17, and \$37.35 and \$38.50 respectively.

During the twelve-month period, November 1960 - October 1961 the employment structure in the community was approximately as shown in Table XXXI.

Table XXXI Employment structure 1960-61

	Average number per month
Employed by mine	62
Employed by other organizations	5
Unemployed	63

Source: D.N.A. records, Rankin Inlet

The unemployed category includes individuals unemployed for reasons of ill health, old age, dependent children, and economic reasons.

It would also include a few hunters and trappers.

That there should be people unemployed for economic reasons may seem strange, but this group would include some who had voluntarily left the mine, been laid off, or fired, and some who had come seeking employment with no success. Presumably, it would also include some individuals at the Keewatin Rehabilitation Project at Itivia.

It is inappropriate at this juncture to attempt an estimate of sources of income and earnings in Rankin Inlet. Such an estimate would be relatively meaningless as it would show only a very temporary situation. With the mine closed employment opportunities are limited. In November 1962 10 men were in regular employment, 7 working for D.N.A., 2 for the H.B. Co., and 1 for I.N.H.S. 3 had temporary employment with D.N.A. and 7 were for the time being self-sufficient on savings and hunting. Another 12 were engaged in the newly initiated trapping project.

Needless to say, since the shut-down of the mine the number of recipients of relief has increased markedly. During the fiscal year 1961-2 an average of 23 families received relief, 13 for reasons of health, 5 for reasons of dependent children, and 5 for economic reasons. These are only average figures, and during periods of slack casual labour opportunities the number on economic relief would be much higher. Table XXXII shows recipients of welfare payments for four recent months in 1962.

Table XXXII Recipients of Public Assistance June - November 1962

Month	No. Families	No. Persons
June	22	88
July	21	88
August	23	99
September	25	108
October	38	186
November	55	264

Source: Mr. R. Williamson, Welfare
Officer, Rankin Inlet

The reasons for assistance in November were:

Health	10	heads	of	families
Widows etc.	5	"	"	"
Economic	40	"	"	"

In Rankin, the same kind of situation with regard to relief as exists at Baker Lake can be detected. During the summer of 1962

a fishing project which had been planned during the winter was unsuccessful as relief was preferred to gainful employment by the bulk of the unemployed Eskimos. One reason for this was that any earnings from gainful employment would be deducted from the relief cheque.

Resources

Fox, caribou, fish, and marine mammals can all be obtained in their season in the Rankin Area. Prior to the development of the mine a few families camped in the vicinity of Rankin Inlet and traded into Chesterfield. The large population which concentrated around the mine made little attempt to harvest the resources for food or clothing in an organized way. The Daileys reported that some mine workers would trap on week-ends and indulge in occasional seal hunting, and they noted that Monday mornings were often difficult from the point of view of getting the miners back to work. They prophesied that if the rehabilitation project was established at Whale Cove perhaps as many as 25% of the Eskimo mine staff would quit and go there. The prophesy was apparently reasonably accurate.

Fox

Only recent records for fox takes are available. In 1961-2 980 were taken and these mostly by one large family who trapped only a little way out of the settlement. What fox take might be expected in an average year by trappers working inland from Rankin is not known but it would probably equal that of Whale Cove.

Fish

Fishing in the past in the vicinity of the settlement has been limited to subsistence fishing by the few families who used to live in the area and no records are available of their catches. Observation and test fishing by other individuals since then suggests that quite a large supply of fish could be obtained from coastal and inland fishing. The Meliadine and Diana Rivers, Corbett Inlet and Pistol Bay have all been observed to have good char runs but the exact quantity of fish which might be taken on a sustained yield basis has yet to be determined. In 1960 the Northern Service Officer reported that char were abundant at the mouth of the Meliadine long before break-up. The following summer some nets in salt water took 300 lbs. of char per day in July and August but the fishing was poorly organized. In early July 1962 the Survey netted 964 lbs. of char and 12 lbs. of greyling, lake trout, and cod at the mouth of the Meliadine in an 8-day period. In addition an Eskimo fishing with Government nets in the same area caught 3,500lbs. Other Eskimos were fishing in a very casual manner, taking 2-5 fish per day. Their nets were set in water which was too deep and in spite of the fact that they knew better catches were being taken by others they made no effort to improve their fishing.

A program was tentatively set up to fish the mouth of the Diana River, Corbett Inlet, and Pistol Bay for an expected catch of

20,000 lbs. which was to have been fresh frozen at Rankin. It proved to be impossible to interest the Eskimos in the venture however, and the program was not carried out. There seems to be little doubt that the Eskimos preference for relief and the readiness with which they could get it was the main stumbling block.

It is estimated that about 20,000 lbs. and 52,100 lbs. could be taken from coastal and inland fishing respectively.

Marine Mammals

Again, very little effort has been made to catch marine mammals in the area. Apparently, seals are not now found very close to the settlement and this may be due to two causes - blasting operations in the mine which would probably scare the animals away, and the frequent passage of outboard motors in the inlet. Eskimo mine workers have resorted to boating for pleasure in the inlet and unfortunately, pleasure boating has been associated with seal hunting for fun. There is no way of knowing how many seals have been killed and their carcasses lost in this way. The seals, however, have not been scared off to an inaccessible distance - they may be found about five miles from the settlements. Bearded seals have been spotted or taken off Marble Island.

Walrus have been reported with decreasing frequency in the past. At one time they frequented Morse Island. No doubt a group of skilled and active hunters based in Rankin would catch the occasional walrus.

Whales are not known to frequent the area in large numbers and they have not been reported from this area. It seems likely however that they will occasionally come near the settlement and would probably be found near the adjacent rivers at some time during the summer.

Discussion

In spite of the fact that many Eskimos worked in the mine for short period and then abandoned the life, the mine management through its policy of hiring and training Eskimos proved that they can be successfully trained for skilled jobs. On the other hand, the fact that many Eskimos regarded the mine only as an additional opportunity for casual wage work, or that they left the work entirely in favour of hunting and trapping demonstrates that there is a large body of them with no desire to become permanently tied to industrial work discipline. No doubt this situation will change slowly with time and education, but it is these people who justify and warrant continued efforts in the field of resource projects, tourism, handicraft. Furthermore it will be realized that the mine represented only one additional opportunity and a somewhat limited one. The opportunities for Eskimos to embark on a number of different jobs are yet available in Keewatin and few Eskimos are trained to take advantage of additional opportunities which might arise from time to time.



Photo 17 - Rankin Inlet, looking seaward. Large ships can tie up at cliff at right centre below storage shed.



Photo 18 - Rankin Inlet, Eskimo houses.

The resources of the area are limited but have not yet been exploited in any organized way. Fox, caribou, fish, and marine mammals, are present in sufficient numbers to provide a small land-based population with substantial food supplies and a cash income, and whales could be expected to swell the larder if more actively hunted along the coast. This will not, however, solve the problem of Rankin Inlet.

There are three other possibilities - the opening up of job opportunities for the miners in other mining areas, relocation and the establishment of small industry in Rankin.

Continued efforts to find jobs for the miners who have been laid off may result in some of them obtaining work in other mining areas. Perhaps 20-30 may obtain work in northern Quebec, a possibility which would alleviate the situation in the next few years but not in the immediate future.

The question of relocation is discussed in the next section of this report. It is not known yet how many of the Rankin residents will be willing to go back to their original settlements or to other areas. At a meeting held to discuss this question with the Rankin Eskimos in February 1962 only a few Eskimos stated that they wished to leave Rankin and go back to the settlements from which they had come. Most stated that they would prefer to stay in Rankin and "get wage work". We may suspect, however, that few, if any, of them realized at that time what the effect of the closing of the mine would be. They may have felt that when the mine closed other work would be available. This has not been the case. It seems unlikely that any of them could really visualize Rankin without wage work. Now that the fact is before them they may feel differently. While we cannot yet judge how much more voluntary emigration there will be, we can be sure it will be little during the winter time. The summer of 1963 may see further emigration but this will partly depend on whether or not other projects or small industries are established in the settlement.

The case for establishing projects or small industries at Rankin is a compelling one, particularly if considered from the regional point of view, and not just from the standpoint of the needs of Rankin alone. Active consideration is being given at the present time to several possibilities including the movement of regional headquarters from Churchill, Manitoba, the establishment of a large vocational training school, development of a wood-working industry, toy making, sealskin tanning associated with clothing manufacture, and others. These all require careful assessment, not only discretely but in relation to each other, in terms of numbers to be employed, materials, educational and social benefits and so on. Assessment is of course hampered by lack of knowledge of the course of events in the meantime and unforeseen events in the near future. For example, a large emigration in the summer of 1963 may make some projects unfeasible, or the opportunity for mine work elsewhere may further reduce the need for large projects at Rankin.

Notwithstanding that there may be future developments which will change the situation for the better it is necessary to examine the case for small industry in Keewatin to determine whether the economic base of the region can be broadened in such a way as to produce enduring social and economic benefits. As will be seen in Part IV unless such a broadening is possible a large part of the population will inevitably have to be maintained on relief.



Photo 19 - Rankin Inlet, Eskimo houses.

6. The Settlements - Their Population Status

The theoretical population obtained by the calculations set out on p.59 represents the number of people that the local resources of certain parts of the region could feed. What we wish to know is how many people could live in these parts; live, that is, with some prospect of social and economic progress. Obviously, the theoretical population is unrealistic and requires careful qualification, taking into account the different conditions in each settlement.¹ The main object in using the theoretical figures is to determine as closely as is reasonable how many people could obtain basic subsistence from land-based activities, i.e. trapping and hunting. These activities would supply food and some cash income while further cash income would come from casual wage work, participation in projects such as tourism and handicraft production, and family allowances and other social payments.

Several general considerations which apply to all the settlements are enumerated below.

(1) The population in each settlement can be divided into certain broad economic groups:

(a) Those who are secure in wage work. While all these may not be earning high wages their wages are dependable and may be supplemented by some hunting and trapping.

(b) Those who for reasons of dependent children, health, infirmity, or old age, receive a basic welfare income which is dependable and permanent or semi-permanent.

(c) Those who receive relief by reason of lack of economic opportunity.

(d) Hunters and trappers who augment their income by casual wage work according to the opportunity and their own inclinations.

It is essentially groups (c) and (d) which would form the core of land-based population in each settlement. (We ignore for the moment the question of how many of these individuals really wish to continue or resume hunting and trapping activities - in the absence of a wide range of alternative activities there is no way of knowing how many would wish to abandon such a life altogether.)

¹ For a brief check on the validity of the theoretical population see Appendix II p.154

(2) The theoretical population was calculated on the assumption that each family obtained its entire food supply from the local resources. This, of course, is quite invalid. Apart from the fact that the oil rendered from blubber contributed a large number of calories to the theoretical food supply, which would probably indicate a somewhat unbalanced diet, we have to consider changing tastes and the increase in store bought foods. However, we should bear in mind that not many years ago the Keewatin Eskimos did in fact obtain the bulk of their food supply from the local resources. Insufficient data is available to estimate the amount of food which would be so obtained but observations at Whale Cove, Repulse Bay, and Coral Harbour suggest that $2/3$ is a reasonably expectable portion, particularly if adequate food processing and storage techniques are widely adopted. This does not mean to say that the theoretical population can be raised by $1/3$. Rather it should be assumed that the total yields of wildlife will not be taken or, if they are, that their use will be accompanied by about $1/3$ waste. Dog food alone is an important consideration. While it is to be hoped that mechanized transport will replace dogs, it would be unwise to imagine a situation in the near future which did not take a dog population into account. Proper processing and preservation would, however, make available an ample supply of dog food without the dogs receiving any food which should be preserved for human consumption. (See Table E Appendix 11). Also, while the theoretical yield of seals, for example, may be taken in any area they may be taken more for the value of the skins than for food. This could result in a surplus of food, or quite simply, in waste. On the surface this may seem an undesirable situation but would perhaps be in accord with the reality of the situation - which leads to the third consideration: the need for cash income.

(3) The need for cash income reduced the possible number of people who could engage in hunting and trapping in any given area. For example, at Chesterfield, a theoretical population of 46 families implies that there would be 46 adult males plus about 20 older teenagers who would be engaged in land-based activities - a total of 66 individuals. Assuming that they took the maximum 1635 seals with a total value of say \$16,350 for the skins, and that they took 1000 foxes with a value of \$8,000, their total income from these sources would be \$24,350. Divided between 66 men this averages out at less than \$400 per man. Their chances of increasing this by wage work and other activities to \$1000 would be slender. This would not be consistent with the aim of improving the standard of living generally. While we are reluctant to suggest what cash income might be considered as "good" - too many value judgements are involved - we suggest that less than \$1000 with no prospect of improvement is not "good". Clearly, the theoretical figure of 46 land-based families for Chesterfield is too high, but a surplus of human food will be an inevitable concomitant of a smaller population. This surplus will go to waste (or to the dogs) unless a market can be found for it.

(4) There is a possibility that surplus food can be sold within the region. It has been noted that there is little exchange of goods within the various communities, except in the case of Whale Cove where the co-operative does perform the function of a local market place. Improved

harvesting methods and processing techniques should lead to surpluses, but these surpluses will be valueless unless markets can be found for them. If markets can be found, then the land-based families will have an additional source of income. Some food items may find a southern market, e.g. char, and those marine mammal products which can be processed as specialty foods. Locally, the only people who might offer an effective market would be those engaged in steady wage work - if the country foods are acceptable to them in preference to store-bought foods. The present number of regular wage employees does not constitute a substantial potential market. If, however, small industry is established at Rankin or elsewhere the prospects for local sale will be improved - particularly if such industry or industries were to employ 40-60 families. Another possibility lies in the school hostels which could be a useful market for properly processed and packaged foods. Arrangements are at present being made with the Hudson's Bay Company to buy for resale some of the processed foods through their local stores.

In assessing the population prospects for the various settlements, the above considerations are taken into account in the following pages. More specific points are included in connection with the individual settlements. For the sake of consistency, the "present" population is based on the January 1962 data.

Eskimo Point

Theoretical population	60 families	300 persons
Present population	65 "	275 "
<u>Apparent</u> degree of under- population		25 "

Six heads of families were in secure employment and 10 more received assistance during 1961-2 for reasons of dependent children. This suggests that Eskimo Point could absorb perhaps another 10-15 land-based families. But in 1961-2 an average of 22 families received assistance for economic reasons - 45 able-bodied men received relief who would not have needed it had there been gainful employment available. Furthermore, since June 1962 seven families (20-30 persons) have gone to Eskimo Point from Rankin. Therefore, Eskimo Point should not be regarded as a settlement capable of absorbing more families at present or in the near future. While families or individuals who regard Eskimo Point as "home" can hardly be stopped from returning there, others should definitely be discouraged unless they have a significant contribution to make to the settlement's economic progress. The resources of the hinterland and coast are apparently sufficient to form the basis of a healthy community about the present size, but until the present population is more fully and productively employed it is not possible to judge more accurately the population status of the community.

Whale Cove

Theoretical population	36 families	180 persons
Present population	38 "	138 "
<u>Apparent</u> degree of under- population		42 "

Two heads of families are in secure employment, the incidence of relief is low, and since June 1962 four families have gone to the settlement from Rankin. Whale Cove appears to have approximately its optimum population at the present time - which means that it runs the risk of becoming over-populated easily. Therefore, Whale Cove should not be considered as capable of absorbing more families in the near future.

Repulse Bay

Theoretical population	40 families	200 persons
Present population	27 "	121 "
<u>Apparent</u> degree of under-population		79 "

The present population appears to be content but has a low standard of living, very inadequate housing, and most families have received some form of public assistance for economic reasons in recent years. The community seems to lack leadership and is short of capital equipment such as large boats. As an area for the relocation of families who wish to be largely self-supporting off land-based activities Repulse Bay offers scope for about 10-14 families.

Southampton Island (Coral Harbour)

Theoretical population	60 families	300 persons
Present population	45 "	210 "
<u>Apparent</u> degree of under-population		90 "

Four heads of families are engaged in secure wage work. There is a relatively large casual wage work income (\$25,000), and the bulk of the population is already land-based. The addition of 18 families would raise the number of hunters and trappers to about 75 which would mean trapping would have to be more efficient and better organized. On the basis of the information gathered to date, Southampton could probably absorb 10 - 15 more families.

Chesterfield Inlet

Theoretical population	46 families	230 persons
Present population	17 "	80 "
<u>Apparent</u> degree of under-population		150 "

The present economic base of Chesterfield is wage work. Seven heads of families are secure in wage work (other members of these families also have wage work) and two more receive assistance for reasons of dependent children. Four families have gone to the settlement since June 1962. As was pointed out on p.112 it is not likely that in the near future 46 land-based families could satisfy their needs for subsistence and cash income.

However, in view of the fact that present population derives its major sustenance from wage-work, Chesterfield could probably absorb at least 30 more families (about 150 people) in the near future.

Baker Lake

Theoretical population	10 families	50 persons
Present population	89 "	420 "
<u>Apparent degree of over-</u> population		370 "

Figures obtained during the summer of 1962 revealed a population of 499 in 100 families. Since June 1962, two families and two individuals have gone to Baker from Rankin. Therefore, the apparent degree of over-population is roughly 450. Fifteen family heads are in regular wage employment, 11 are widows with dependent children, and there are about 12 families and individuals in camps on the land away from the settlement, making a total of about 150 people who are gainfully employed or otherwise relatively secure. (Although most of the present land-based families receive occasional relief, they may be considered as generally gainfully employed.) This reduces the apparent degree of over-population to about 300. The theoretical population represents the population which could live in the settlement, hunt and trap, and augment their income by casual wage work. Assuming, therefore, that at present there are 150 persons who are gainfully employed or are receiving permanent or semi-permanent welfare assistance and that another 50 can be gainfully employed on land-based activities and casual wage work, the "desirable" size of the Baker Lake population is about 200. By this accounting, Baker Lake is over-populated by approximately 300 people.

Rankin Inlet

Theoretical population	23 families	115 persons
Present population	98 "	520 "
<u>Apparent degree of over-</u> population		405 "

Since June 1962, 18 families and two individuals (about 65 persons) have left Rankin for other settlements - whether they will stay in these settlements is by no means certain. This reduces the present population to about 455. There are 10 heads of families in regular wage work and another five receive permanent or semi-permanent welfare assistance - about 50-70 persons in all. As in the case of Chesterfield, the theoretical population probably overstates the case for the renewable resources when the needs for cash income are taken into account. Twenty-three families would require considerable casual labour opportunities to augment their income from land-based activities. Future events at Rankin will have considerable bearing on this. For the time being, however, it is possible that 15 families or about 75 persons could make a living from land-based activities plus wage work. Subtracting these 75 plus the 50 accounted for above from the population of 455, it appears that Rankin is over-populated by about 330 people.

Summary

(1) A theoretical population has been derived, based on the food value of expectable yields of various species of wildlife and the calorie requirements of a family of five.

(2) The expectable yields are considered reasonable, conservative, and consistent with the needs of conservation.

(3) Certain areas and species of wildlife have been excluded from the discussion altogether, hence the total stock of wildlife in the region is not, in theory, exploited.

(4) It is assumed that the theoretical population derives only 2/3 of its food from the wildlife resources.

These four considerations plus observation and past records suggest that the theoretical populations derived understate the case for the food potential of the renewable resources. This is desirable as allowance has to be made for a dog population in the foreseeable future.

(5) In arriving at a figure for the degree of over-or under-population in each settlement, the present working population and some semi-permanent or permanent welfare recipients are taken into account. Recipients of old age pensions or blind persons allowance have been excluded. The general state of the economy of each settlement has also been taken into account.

(6) The "desirable" population for each settlement is in each case considered to be consistent with prospects for social and economic improvement. Each settlement could be occupied by a much larger population than that suggested, but with less opportunity for economic progress.

Table XXXIII Summary Tabulation of Over and Under-population

Settlement	Over-population	Under-population
	(approximate numbers of persons)	
Eskimo Point	Apparently under-populated but no expansion advocated	
Whale Cove	Apparently close to optimum population under present conditions	
Chesterfield		150
Repulse Bay		50 (minimum)
Coral Harbour		50 (minimum)
Baker Lake	300	
Rankin Inlet	330	
Totals	630	250
Balance	380	

Relocation

Table XXXVIII shows the approximate size of the present population mal-distribution in relation to local resources, and indicates the most favourable areas for relocation. Relocation would go a long way toward reducing some of the economic malaise in Keewatin, but is not something to be achieved overnight. A great deal of preparatory work has to be done, and should be done in close consultation with the Eskimo councils as part of community development programs. Relocation deeply affects the lives of the people involved and lends itself to a total community development approach. A program for relocation could be drawn up along the following lines:

(1) Prepare a statement on paper showing

- (a) the resource potential of Repulse Bay, Coral Harbour, and Chesterfield Inlet
- (b) how this resource potential might be used
- (c) what facilities and capital equipment are available in these communities at present, and what additional facilities would be required for a larger population.

This statement should be used as a basis for discussion with councils and individuals in the three settlements named and in Baker Lake and Rankin Inlet. The statement should include the outline of a possible program for each settlement thus:

Chesterfield Inlet: (1) Intensive harvesting of Daly and Bernheimer Bays involving a cannery in Daly Bay and organized netting and hunting of seals.

(2) Formation of a co-operative trading store.

(3) Technical help and guidance in handicraft production.

Coral Harbour: (1) Intensive harvesting in the Duke of York Bay area involving netting and hunting of marine mammals and fishing. This to be associated with catching dog food for winter use on trap lines in the northern part of the Island. This work might be done in association with Repulse Bay people.

(2) The recommendations laid down in the Southampton Island Area Economic Survey Report are still generally valid.

Repulse Bay: (1) Financial assistance to acquire at least one Peterhead type boat to permit more intensive hunting of marine mammals.

(2) Financial and technical help to improve fishing equipment and techniques.

- (3) Guidance in raising the quality of soapstone carving.
- (4) Building of community cold storage space.
- (5) Possible participation in harvesting in Duke of York Bay; and future projects in Wager Bay (see Southampton Island Area Economic Survey Report).

(Note Repulse Bay is the least sophisticated of Keewatin communities. The community lacks leadership and capital equipment.)

The programs for all three communities should include provision for production of sealskin handicrafts in future. See also the prospects for sealskin tanning mentioned on p. 53 .

- (2) Discussion with Eskimos during the Survey indicated that housing would probably be an important consideration in relocation. A tentative housing program should be prepared based on increased population in the three communities. Eskimos interested in relocation should be advised that houses may not be available immediately.
- (3) Initially, attempts should be made to interest Eskimos at Rankin and Baker Lake in going to Chesterfield and Coral Harbour. There would probably be fewer social problems attached to persuading ex Chesterfield residents to return there than there would be in trying to encourage families from Baker Lake to go to Southampton Island.
- (4) It is unlikely that the relocation of 250 people could be carried out in one summer season, consequently a phased program should be envisaged. The timing of the move would be important. Spring would be the most favourable time as relocated families would be able to make initial adjustments to their new surroundings during the summer. A fall movement would allow the relocated families no time to prepare for the winter.
- (5) Families interested in moving should be asked to co-operate in the planning by providing information as to their capital equipment, savings, religious and ethnic affiliations. Much of this information is already known to the administrators in the field. The gathering of information on how many families would be willing to move, their economic condition, and other family details, would necessarily precede the planning of the relocation operation.
- (6) Given this information it would be possible to plan the timing of the move and method of transportation. Movements from Baker Lake or Rankin could probably be carried out by boat, but movements to Coral Harbour might best be carried out by air. Adequate arrangements would need to be made to

receive the relocated families.

Obviously, relocation would be a complicated process, requiring time and adequate preparation. While much of the work and information could be undertaken by the local field staff, this would represent a considerable additional burden to them. Other individuals and organizations - teachers, R.C.M.P., and missions - would no doubt be willing to co-operate and help within the limits imposed by their other duties. It would be essential, however, for one person to initiate the proposal, at the community level, collect the necessary information in one central office, suggest the phasing, timing, and means of transportation and organize the actual relocation operation. It is suggested, therefore, that if relocation is to be attempted a suitably qualified member of the staff, either from the field or Ottawa, be placed in overall charge of the scheme right from the start.

It must be emphasized that a relocation program carried out with the whole-hearted support of the Eskimos would stand more chance of success than one imposed upon them. The reasons underlying the proposal should be carefully discussed and explained, preferably through the medium of the Eskimo Councils.

If it is decided to embark upon a relocation program the Councils should be invited to participate fully in the planning and organization.

7. General Considerations

Many factors which influence the socio-economic life of the settlements have not been discussed, and in some cases not even hinted at, in the foregoing pages. This has been due to selectivity, not negligence, and the interested reader will find much that is informative on many aspects of the Keewatin picture in the works which have been referred to in the body of the Report. There are, however, five matters which must be mentioned for their particular relevance:

- (1) Tourism
- (2) Handicraft
- (3) Entrepreneurship
- (4) Relief
- (5) Tundra Research Station.

(1) Tourism

In Keewatin tourism is in its infancy. In the spring and summer of 1962 a tourist seal hunt and an angling survey, respectively, were undertaken. Both revealed the unexploited potential of the region and showed up some of the problems which have to be solved before on-going tourist enterprises can become an annual feature of the Keewatin economy. Sport fishing and hunting, together with the opportunity to visit Eskimo settlements, go on canoe trips and dog team trips, and see a variety of wildlife, all hold attractions for the tourist who is seeking something different.

Efforts so far have been concentrated in Whale Cove and Rankin Inlet because of the availability of accommodation and potential guides in these two settlements. Chesterfield, however, would justify further study from the point of view of tourism. It is an historical settlement in Keewatin and is accessible to a wide sea area. It is within reach of Daly and Bernheimer Bays where there are many old campsites, including ruins similar to those of the Sadlermiut on the west coast of Southampton Island, and relics of an old whaling station. In addition, at certain times of the year, the tourist would stand a good chance of seeing caribou, walrus, and whales. From Chesterfield the keen traveller could make a Peterhead trip to the Arctic Circle at Repulse Bay¹.

Much ground work remains to be done, including the training of guides and the establishment of the most suitable type of accommodation and other tourist facilities, but eventually a strong tourist trade could be significant to local income. Apart from the revenues which could result from the hire of guides, dog teams, and boats, tourists would offer an outlet for handicrafts, locally made Arctic clothing, and art work. Work on the development of tourism continues, and while it is unlikely to make a large contribution to total income in the next two or three years, its potential is considerable.

In any given settlement, a developed tourist trade catering to say six parties over a period of four months and employing six guides could result in an income of about \$5,000 net from guides' fees, hire of dog teams and boats, and the sale of crafts.

¹ For a more detailed appraisal of tourism also applicable to Keewatin, see Brack, D.; 1962 pp. 66-9

(2) Handicraft

Handicraft has been mentioned without elaboration in connection with almost each settlement and a few comments are essential to a more complete picture. The quality and type of craft varies widely from settlement to settlement and with the skill of the individual workers. On Southampton there are one or two first class ivory carvers; in Baker Lake some fine soapstone carvings are produced; and parkas, mitts, and other items are made in most settlements. In Repulse Bay over \$10,000 worth of stone carvings were turned out in 1961-2 but these were of low quality.¹ Apart from Repulse Bay the quantity and value of handicraft products are low but this is no indication of the potential value of a thriving handicraft industry - for such is its scope - to the region.

Craft production is susceptible to organization at three different levels: firstly as profitable side line for individual men or women with the necessary skills, secondly as a part-time or full-time occupation of men or women - capable of being organized at the cottage industry level, and thirdly as an industry located in equipped workshops and employing a force of skilled workers. Carving is probably most susceptible to the first type of organization, and clothing manufacture to the third, but obviously a number of ways of organizing handicraft production are possible.

The possibilities for the three types of organization - side-line, cottage industry, and workshop industry - justify deeper appraisal than can be given here, but early steps should be taken to promote the expansion and broaden the scope of present production. Three matters require attention immediately. The first of these is guidance and encouragement. In every settlement there are men and women capable of producing fine crafts but who are unaware of the potential value of their skills. There are various ways in which awareness might be increased. Apart from personal encouragement by a specialist on the spot, more use could be made of literature and illustrations. Descriptive pamphlets written in Syllabics, and photographs of good quality crafts, should be made available in every settlement for the guidance of receptive individuals. Other sources of ideas should not be overlooked. Mr. W. Larmour, the handicraft specialist of the Industrial Division, has reported that while he was at Baker Lake during the winter of 1962 he found that some Eskimos would spend long periods in the evenings studying the illustrations in copies of the Report of the Fifth Thule Expedition and expressed great enthusiasm when they learned that some of the items portrayed, and which they or their wives could make, would be acceptable as crafts.

Elsewhere in this Report it is emphasized that insufficient use is made of Syllabic pamphlets and other printed matter for bringing knowledge, ideas, and information to the Eskimos. This theme cannot be over-emphasized.

¹ See Brack, D.; 1962, p. 77

In addition to those craft items which are becoming increasingly well-known and sought after by the public - carvings, mitts, parkas, and graphic arts - there are prospects for new products. In Keewatin, as in Frobisher Bay, there are possibilities for polishing and fashioning stone for costume jewelery. And there is a much more novel possibility - the use of caribou bone and hoof for costume jewelery and more utilitarian items. Very attractive pieces can be produced from polished caribou hoof. The writer has seen cuff-links, ear-rings, brooches, and bracelets, made from highly polished hoof. Some of these were fashioned after the shape of familiar animals, while others assumed interesting abstract forms. The polished hoof is opaque, with dark and light brown streaks, and has natural curves which enhance the artistry of the worker. More utilitarian items include snow-goggles, which, when fashioned from layers parallel to the face of the hoof, have a shape which fits comfortably below the wearer's eyebrows. These could well find a ready market in the southern ski lodges in the winter time.

The technique of processing the hoof, which involves boiling and pressing, is relatively simple to learn and presents no obstacle to the development of this kind of craft work. Needless to say, at present, hooves of killed caribou are chewed up by dogs or rot on the tundra.

Given that information, guidance, and instruction is available, the second aspect of handicraft production which requires early attention is the supply of materials. It is useless to try to encourage increased production without making the tools and materials available. Mr. Larmour has informed the writer that, also in Baker Lake, when he discussed various types of crafts with the men and women there he was told, "We can make these things, but we do not have the materials." Bearing in mind the natural modesty of the Eskimo the assertion "We can make these things.." is probably an understatement. This is a plea for help - give us the tools and we will do the job - and it is a plea which is not difficult to respond to, for all that is required is organization.

Organization of production along profitable lines affects, of course, the whole system of production - guidance, training, acquisition of materials, collections of finished goods, and marketing. The first five of these call for efficient field work. This does not need a full-time specialist in each community but one or two specialists in the region visiting the various settlements periodically could provide sustained guidance and at the same time devise a system of inventory that would keep the workers supplied. A central supply of duffel, thread, and other materials maintained within the region is essential to steady and continued production. A central store of this kind could probably be eventually organized as part of - or as a specific - co-operative.

Organization is required not only for inventory and production but also for the collection of material. There is some very fine stone not too far distant from Baker Lake - the Survey was not able to determine its location exactly - which would apparently lend itself to a small quarrying operation to supply the settlement, but the Eskimos seem to be incapable of organizing themselves to exploit the deposit. The deposit

is difficult to get at by canoe because of rapids, but could be reached by dog team in the winter time. So far, there seems to be no incentive or motivation to work the deposit. The collecting of caribou hooves would also have to be organized; and for a sealskin tannery as described previously a system would have to be devised for collecting skins and delivering them to the tanneries. In this case "agents" in each settlement would be necessary to ensure that initial drying and handling were properly carried out. In short, what is needed is a man on the spot capable of suggesting and demonstrating suitable organization and able to overcome the initial local inertia.¹

In summary, with further guidance, encouragement, material, and organization, craft work in Keewatin could be developed to the point where the majority of families could derive some income from it, and some families could perhaps increase their income by several hundred dollars, and certain types of craft, e.g. hoof working lend themselves to workshop industry.

Handicraft has been dealt with at some length here because early action can produce early results, and because one of the major weaknesses associated with it - organization - has already been shown to be a weakness in other activities in the region. This lack of organization is a symptom of another prevailing deficiency in the socio-economic life of Keewatin today, namely entrepreneurship. This deficiency is pertinent to the present study and is discussed briefly below.

(3) Entrepreneurship

Entrepreneurship is a concept normally equated with possession of capital to invest, ability to recognize economic opportunity, and to organize, supervise, and if necessary "boss", other people. It is also, of course, associated in our society with the profit motive.

That entrepreneurship is apparently lacking among the Eskimos is understandable in so far as the notions inherent in entrepreneurship are generally alien to them. It is questionable if they are really interested in supervising or bossing people; they have practically no experience of organizing enterprises outside the family circle, and, even within the family, organization tends to be loose; and as for his "profit motive" we know very little indeed about this. Incipient entrepreneurship does, however, exist. It exists in the man who hires his dog team or Peterhead to strangers, and in the trapper, and in the craft worker, but this incipient entrepreneurship does not operate within a complex commercial organization. The ability to organize, and an interest in organizing, is also incipient in the Whale Cove co-operative, and perhaps to some extent it occurs when members of different families take part in a Peterhead walrus hunt, although this is more likely to be a mutual arrangement rather than an "organized" venture.

¹ While this was being written, information was received that attempts were being made to recruit two craft specialists for Keewatin.

It is not being suggested here that there is something bad or undesirable about a race who have a different view or understanding of the aims and objects of any activity from our own, nor that cupidity should be promoted as a measure of progress. What is being suggested is that the Eskimos of Keewatin require to be educated to understand the economy of modern life, the need for organization, the need for supervisors - and bosses, and the meaning of responsibility. That this education is now required is largely due to their previous cultural history and their contacts with the white man.

It will have been obvious from the content of this Report so far that apart from the Hudson's Bay Company and the Missions there are no private agencies in Keewatin. All the other agencies are government departments. In this respect, Keewatin is not unique in the Canadian Arctic, but the eastern Arctic is the only frontier in Canadian history in which free agents have been almost entirely absent. In Keewatin there are none, and the Eskimo has much to learn before he can take a place with confidence in the competitive society to which, in theory, he belongs.

In the last general election he was instructed how to vote as a Canadian Citizen, but has he ever been instructed how to set up shop for himself? In the years that the Rankin Mine was operating was any Eskimo ever advised that he could apply for a franchise for soft drinks and establish for himself a profitable little business? In the two large settlements of Baker Lake and Rankin where there are considerable white populations where is the Eskimo bakery? At Baker Lake during the summer time there is a fairly steady, albeit small, flow of transients who stay at the D.O.T. mess or with whoever can give them accommodation - where is the small Eskimo-owned-and-operated hotel? Also, in Baker Lake quite a large number of small planes stop at the settlement during the summer. The operators make their own arrangements for refuelling as best they can - there is no Eskimo-owned-and-operated refuelling service. Granted that lack of capital is and has been an obstacle, the Eskimos seem to have absolutely no awareness of these possibilities.

In the government services the situation is the same. In seven settlements with a population of over 1700 people there is not a single Eskimo postmaster. The R.C.M.P. employ about half a dozen special constables; the Wildlife Service three predator control operators; and I.N.H.S. employs about half a dozen nurses aids. This employment is significant and represents a fairly high use of the human resource, but only at the lower levels. In the three D.O.T. establishments the most "skilled" workers are a few truck drivers. So far the Eskimos have been employed mainly for unskilled tasks such as painting (done in an unskilled way by the Eskimos), janitorial work, clearing away snow, and cleaning up garbage. On the other hand, the North Rankin Nickel Mine trained over 25 Eskimos for the skilled jobs at which they were employed, and one of these jobs was of foreman status.

In this Report attention has been frequently drawn to the need for outsiders to come into the area and provide know-how and suggest organization. In some cases, such as food processing, this is understandable in view of the highly technical and specialized nature of the work. But it is unfortunate that the same approach has to be adopted in connection with

tourism, handicraft, and the exploitation of underexploited areas - as yet there are no Eskimos capable of organizing seasonal operations.

While it is true that very few Eskimos are equipped by education or training to fill better and more skilled jobs this merely highlights a serious deficiency in the overall approach to the problems of social and economic development in Keewatin.

Again, while the major part of the answer lies in accelerated education programs there is much that could be brought to the people by means of the written - and broadcast - word. In this connection we should be aware of the fact that the Eskimo receives none of the commercial and market information accessible to the average Canadian Citizen. He should be supplied with written information about the state of the fur and sealskin market so that he will know what the prospects are for these items. Residents of other settlements should have ready access to information about the food processing and whaling ventures at the Thanne and Whale Cove. They should receive periodic reports on what is known about the state of the wildlife of their areas - mere exhortations to shoot less caribou and eat more fish do not tell him a thing. And, most important, he should have much more information on the facilities which exist to help him financially, such as the Eskimo Loan Fund and the Grant--Loan--Down Payment Scheme for boats. Written tracts should carry sufficient explanation so that the interested Eskimo can appraise the news items according to his own values.

The people of Keewatin have not had an easy life in recent years and their future has been clouded by uncertainty and insecurity. The insecurity has largely been dispelled, but the uncertainty remains. Much of the uncertainty can be dispelled by bringing to them knowledge and information which they can use. Much official planning and anxiety, most of it probably necessary, has been associated with Keewatin since the middle of the last decade. The Eskimos have not yet been given a real opportunity to take part in making plans which affect their lives deeply. The opportunity lies through the recently created Eskimo Councils in the various settlements, co-operative enterprises, and the spread of knowledge.

Unfortunately, these means of improving the situation will not be effective while means intended to serve other ends are working at cross purposes with them. An important factor in entrepreneurship is the desire to be self-dependent, or to belong to a self-dependent group. Unfortunately, there is strong evidence in Keewatin that the relief policy which was intended to safeguard the people against calamity, and secure them extreme want, has had the side-effect of reducing or destroying, in many of them, their appreciation of self-support. This topic is dealt with below.

(3) Relief - A Competitor to Productive Employment

It is safe to say that relief policy and relief payments have caused more concern in recent years among field staff, and Ottawa staff who travel extensively in the field, than any other aspect of life in

Keewatin today. (c.f. quotation from Vallee in p. 101)

\$92,878 were paid in relief in 1961-62 in a region which contains less than 1,800 inhabitants.

During the survey some Chesterfield Eskimos who had worked at Rankin and had returned to Chesterfield were asked if they intended to stay at Chesterfield. To this they replied, "No", giving as their reasons lack of housing and welfare at Chesterfield. They intended to return to Rankin where houses and welfare were readily available. Whether "welfare" in their minds suggested only relief or other forms of social security is not clear. However, as family allowances, old age pensions, etc., are governed by law as to the exact amounts which are to be paid whereas relief payments involve some discretion on the part of the issuing officer the implications are obvious - the readiness with which relief might be obtained influenced these Eskimos in their choice of settlement.

Another effect of the relief policy came to the attention of the survey at Rankin Inlet. The price of sealskins during the summer rose to more than \$10 for good skins. In spite of the fact that the Hudson's Bay Company Manager passed information on to many Eskimos that he would pay up to \$10 per skin (rating them, in effect, as valuable as fox skins) he reported that by the end of July he had not received any skins. Seals can be taken in the open water within five miles of the settlement during this part of the year. The main reason for the lack of skins appears to be the fact that any income received by Eskimos receiving welfare payments is deducted from their relief cheques.

Also in Rankin, it was reported that mine workers who were earning \$300-\$400 per month were complaining that they were no better off than individuals on welfare. The mine workers pointed out that they had to pay for their houses, fuel, food, and clothing. They did not have, and could see no immediate prospect of having, electric light. Welfare cases were receiving all these items free.

The Adanak whale factory at Churchill ceased operating in 1960 - but the whales still frequent the south-west waters of Hudson's Bay in large numbers every summer. When properly processed these whales are capable of yielding over 110,000 lbs. of human food per year, plus another 50,000 lbs. of dog food. Appropriate organization and technical knowledge can turn this potential yield into a reality. In spite of the fact that this resource is accessible to Eskimo Point, Whale Cove, and Rankin Inlet, there are now over 70 families on economic relief in Eskimo Point and Rankin Inlet.

It is not our purpose to lend gratuitous criticism to the notion of social assistance as a right to individuals in distress, nor to question the theory of the irreducible minimum, nor to argue the pros and cons of relatives' responsibility as it might apply within the Keewatin region. What does concern us is the fact that high relief payments in Keewatin are justified on the grounds that the resources are supposedly declining or insufficient to sustain the population. This argument would be valid if, and only if, resource exploitation and utilization were only a matter of the presence of resources. But this is not the case. At the risk of implying that the reader is unintelligent or uninformed, it

is necessary to emphasize that resource exploitation and utilization are functions of human motivation, initiative, skill, knowledge, capital equipment, technology, and organization. Without these, resources are merely neutral stuff.

In this report it is shown that Keewatin is not a resource starved area. This is not to say that the resources of the region are limitless and capable of sustaining a much larger population at a high standard of living, but it is shown that the resources are capable of providing subsistence and cash income to the people of the region at a much higher level than they do at present. The major weakness lies not with the resources but with the human organization, knowledge and techniques.

The important point here is not that assistance is given to families and individuals in distress, not that in some settlements able-bodied men need assistance because of lack of better organized and equipped resource harvesting projects, not that there is an irreducible minimum for Keewatin, but that large sums from public funds are being spent in such a manner that further expenditure of the same kind is generated.

While nobody would surely question the appropriateness of relief in cases where disability or lack of resources make it necessary for reasonably comfortable survival, the case for assistance where resources are unexploited is less logical. Where income may be gained from other sources but is not so gained merely because an equivalent amount will be deducted from the assistance cheque the case for assistance as an alleviant becomes subordinate to the case for assistance as an end in itself. The assistance agency becomes, in effect, an employer paying wages for non-production under conditions which lead easily to increasing payrolls. Surely no society is so affluent that it can permit such a situation to exist for long among even a small sector of the community. This is what is happening in Keewatin.

While it is recognized that assistance has been necessary and desirable in Keewatin it must also be recognized that opportunities exist in Keewatin for the expenditure of public funds in a number of ways which will result in progress among the people. Among these opportunities are resource harvesting and utilization projects. But so long as there is a section of the community who prefers paid idleness and is permitted to indulge in it, so long will there exist a situation which, by the sheer logic of it, will persuade other sections of the community away from productive work. Under these circumstances social assistance competes with resource harvesting and other projects for the attention of the Eskimos.

It may be argued that if a family of five can receive \$2,700 from welfare payments and that this is more than they would receive from working on resource projects then resource projects are of doubtful value. This is questionable. By the same token, a special constable's pay of \$3,000 per year would appear to offer only \$300 of inducement to engage in disciplined work. It is not being suggested here that resource projects or activities alone can provide adequate sustenance for the whole

population. Trapping, sealing, whaling, crafts, food processing, wage work both regular and casual, are all significant to the economy as a whole, as are family allowances and payments for attendance at vocational training projects which might be organized in the region. There is ample opportunity which will foster a feeling of self-dependence and encourage the retention of the motivation to be self-dependent and progressive.

The discussion presented above is based on field observation and discussion with local residents in Keewatin. Conclusions are not to be based on figures alone and tables of figures are presented below with little comment.

Known Relief Payments in Keewatin 1950-1962

	Figures in \$									
	1950-1	1951-2	1952-3	1953-4	1954-5	1957-8	1958-9	1959-60	1960-1	1961-2
Baker Lake	692	673	409	499	2728	5701	13410	26640	39881	55591
Chesterfield	4077	4788	4157	4229	6279	2358	1557	3547	2316	3221
Eskimo Point	4598	5253	2603	6306	11933	7136	4237	1129	5591	20907
Padlei			N. D.			2045	693	616	CLOSED	
Whale Cove										1800
Rankin						343	2500	5531	9856	11025
Repulse			N. D.			633	1790	3076	2085	2134
Southampton	1092	747	674	885	1896	1773	2406	1249	12	N.D.
Totals	10459	11461	7843	11919	12096	19989	26593	41788	59741	92878

Notes: These figures are minimal and refer only to direct relief issue known to have been paid.

1955-57 No data available

Invoices for direct relief issue at Baker Lake (H.B. Co. invoices) for 1961-62, compiled by the survey amounted to \$25,449.

Sources: Welfare Division.

A complete breakdown as to categories of assistance recipients is not available. Such a breakdown would require the full time efforts of one officer for perhaps two months. The following tables are based on readily available information:

I Special Assistance for Economic Reasons i.e. no natural resources or wage work available.

(Assistance for Economic Reasons indicates that the family heads are able-bodied and available for wage work).

June - October 1962

	<u>No. Families</u>				
	<u>June</u>	<u>July</u>	<u>August</u>	<u>Sept.</u>	<u>Oct.</u>
Baker Lake		22	46	29	12
Chesterfield		1	1		
Eskimo Point	estimated 22 per month				
Rankin Inlet	9	9	9	15	16
Whale Cove	2	3	3	3	

Source: Welfare Division

II Average Number of Families Receiving Welfare for Fiscal Year 1961-2

<u>Settlement</u>	<u>Welfare Category</u>	<u>No. families receiving</u>
Baker Lake	Economic assistance	42
	Dependent children	7
	Health	2
Chesterfield	Economic	2
	Dependent children	2
	Health	1
Eskimo Point	Economic	22
	Dependent children and health	22
Rankin Inlet	Economic	5
	Dependent children	5

Health 13

Whale Cove figures not available

		<u>Percentage</u>
Totals	Economic Assistance	71 58
	Dependent children	34 28
	Health	16 14

NOTE: From the percentages obtained from Table II it would appear that if jobs could be found for all these on economic assistance the relief bill could be cut in half.

Source: Welfare Division

III Relief as a percentage of total community income 1961-2

Due to incompleteness of data on all sources of income the percentages are approximate.

<u>Settlement</u>	<u>Percentage</u>
Baker Lake	35
Chesterfield	9
Whale Cove	4
Eskimo Point	22

NOTE: The Whale Cove figure gives a misleading impression in so far as the Whale Cove residents occupy houses for which they have not paid. But there are welfare houses in other settlements.

Source: Compiled by Survey and using figures from a number of sources.

IV Eskimo Point

The Area Administrator reports that in 1961-62 45 able-bodied heads of families received assistance who would not have needed it had there been employment opportunities.

6 families have not received assistance.

6 other families are in full time employment.

NOTE: In June, 1961, between Eskimo Point and the McConnell R. 115 seals were counted with naked eye on a four hour sea trip.

V Rankin Inlet Increased in 1961 as a result of the shut-down of mine.

<u>Month</u>	<u>No. Families</u>	<u>No. Persons</u>
June	22	88
July	21	88
August	23	99

<u>Month</u>	<u>No. Families</u>	<u>No. Persons</u>
September	25	108
October	38	186
November	55	264
Population in November	81	438

Categories of assistance for November:

Economic	40 heads of families
Health	10
Widows etc.	5

VI Calculation of possible assistance payments to a family of five

(Based on Welfare Procedures Manual)

Groceries

<u>Individual</u>	<u>Age</u>	<u>Monthly Allowance</u>	<u>Annual Allowance</u>	<u>Total</u>
Father	Adult	\$35	\$420	
Mother	Adult	35	420	
Child	14	30	360	
Child	9	25	300	
Child	4	20	240	
				\$ 1740

Clothing allowance

Father	\$ 100	
Mother	100	
Children - 1 @ 90, 1 @ 80, 1 @ 55	225	\$ 425

Fuel

2 gals. @ 50¢ per gal. per day	\$ 365
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Miscellaneous

2 of family at \$100 each	200
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This family could draw \$ 2730

(5) Tundra Research Station

In spite of the tremendous scientific and exploratory interest in northern Canada, a scientific vacuum exists in the lack of a tundra research station. A great deal of work remains to be done in Keewatin by workers in the biological, physical, and social sciences. A station established at Baker Lake, Rankin Inlet, or Chesterfield would be central to a vast area of tundra for students of marine and terrestrial biology, limnology, geology, archaeology, ecology, and a host of other "-ologies". While the main function for such a station would be to serve the interests of science, it would have a local economic value for guides and interpreters.

8. CONCLUSION - SETTLEMENT LIVING AND THE NEED FOR CAPITAL

In the introductory remarks on p. 6 it was stated that the habitability of Keewatin under the circumstances of settlement living formed the essence of this report. The change of settlement living has introduced a new dimension to the Eskimo economy - the need for monetary capital. The amount of capital needed, and the suddenness with which the need has arisen, have resulted in a shortage of capital of considerable magnitude.

The reasons for this are simple. When the Eskimos had a subsistence economy money did not matter. They built their dwellings out of snow in the winter and skins in the summer. Their fuel came from animal fat, their tools and weapons from animal bone and driftwood. For food they were dependent on their success at hunting and fishing. The introduction of trapping made little change in this general way of life, but it increased the size of dog teams and hence the need for dog food. For mobility the Eskimos depended on their feet, dogs, and kayaks. In one sense dispersal contributed to their mobility.

Now the situation has changed radically. Houses, stoves, beds, fuel, and the rudimentary chattels of settlement living have to be bought, along with more frivolous durable goods. In this respect alone the cost of living has increased, and the cost of hunting and trapping has also increased, because the resources have not changed in character - they are still dispersed and fugitive, they still have to be sought, killed, and brought back to the settlement. From settlements the hunters and trappers must travel farther afield in search of their quarry. To do this they need either bigger dog teams which are expensive in terms of food and hunting time, or mechanized transport and fuel which has to be paid for. To harvest the marine mammals and fish more efficiently they need large canoes and outboard motors, nets, whale boats and Peterheads, oil and gas. The per capita cost of equipping hunters and trappers is greater than it used to be, and they need to be more efficient and productive to cover the cost of living in settlements.

Here then, is one of the "vicious circles" familiar in underdeveloped countries - capital is required for efficient production leading to surplus, but efficiency cannot be improved without capital. Which raises another question - can the economy stand the cost of the capital? The capital can be made available, and capital accumulation fostered; but whether the economy can bear the cost will not be known until the process of adjustment and adaptation to the new mode of life is more advanced than it is now and until the possible returns from more efficient resource exploitation are better known.

Capital can be made available through facilities such as the Eskimo Loan Fund and the Grant--Loan--Down Payment scheme for boats. But there is another source of capital within the region as yet not fully tapped: co-operative trading stores. When a trapper takes a skin to a private trader the trader normally makes a profit on the subsequent sale of the skin. The money, or credit, the trapper receives for the skin is spent in the store, and another profit accrues to the

store as the result of this transaction. All family allowances, old age pensions, relief payments, and wage earnings exchanged for goods in the private store result in a profit to the trader. This is as it should be except that these profits represent a flight of capital from the region.

If, instead of a private trader, there is a co-operative store these profits remain within the community and thus open up to it an avenue of capital accumulation which is sorely needed to improve the equipment of the community or be held in reserve for future exigencies.

Figures which have been worked out for nine co-operatives operating in the north in 1961-2 show that their total accumulated funds (share capital, statutory and other reserves, and undistributed profits) exceed their long-term debts by more than one half.*

Whether trading takes place in a private or a co-operative store the situation has monopolistic elements because the settlements are too small to support competing enterprises. This is not to say that there is abuse associated with the monopolistic situation; but, whereas control over the trading policy of the co-operative is vested in the local people, policy control over the private store - especially if it is one of a chain of such stores - is exercised by outsiders. There are, therefore, extenuating circumstances which justify the organization of trading and the control of trading policy by the people rather than by an outside organization which collects potential capital and carries it beyond the reach of the community which stands in need of it and which has a moral right to it.

* Data for all northern co-operatives are not yet complete, and figures are not available for publication at present.

IV POPULATION GROWTH AND ITS IMPLICATIONS

The Magnitude of Population Growth

In Section 5 of Part II, the variable nature of the renewable resources was briefly examined. It was shown that while the food yield is variable upwards, there is an upper limit to the size of population it can sustain. This limit is set by the size of the yield and the amount of food it is expected to contribute to the total food supply.

The key variable in the future of Keewatin is the population growth. There is a minor population explosion taking place, and, fortunately, the population increase can be forecast with more accuracy than can changes in other aspects of Keewatin scene. The population data contained in the January 1962 disc lists are adequate for present purposes. The population pyramid for that date is shown in Fig. 8 overleaf, and the age and sex groups for each settlement in Table XXXIV below.

Table XXXIV Keewatin Population Statistics - January 1962

Age group	Eskimo Point		Whale Cove		Rankin		Chester field		Baker		Repulse		Coral		Totals	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
70+		3		1		3	1	1		3			1		2	11
65-69	1	1		1		3			3	3			1		5	8
60-64	2	5	5	1	3			1	1	5	1		1	3	13	15
55-59	3	3	2		2	1	2	2	1	4	1	1		1	11	12
50-54	7	2	5	1	7	8	1	2	9	1	3		2	2	34	16
45-49	4	3	1	2	11	12			6	14	3	4	5	4	30	39
40-44	9	8	2	4	14	8	1	2	8	9	2	1	3	7	39	39
35-39	8	7	6	3	9	14	2	1	15	9	6	5	7	4	53	43
30-34	11	5	8	4	17	11	3	3	13	13	2	4	8	2	62	42
25-29	6	10	5	9	22	16	3	2	15	19	5	3	8	9	64	68
20-24	11	12	5	7	20	26	1	2	20	19	6	5	11	9	74	80
15-19	17	17	6	2	23	30	5	7	18	17	9	7	15	9	93	89
10-14	18	19	5	10	33	28	3	6	27	23	9	6	11	19	106	111
5-9	13	21	13	8	44	39	6	5	27	27	11	6	11	17	125	123
-4	23	21	9	13	66	50	7	11	50	41	14	7	20	19	189	162
Totals	133	137	72	66	271	249	35	45	213	207	72	49	104	105	900	858
	270		138		520		80		420		121		209		1758	
Families	65		38		98		17		89		27		45		380	

Age Group

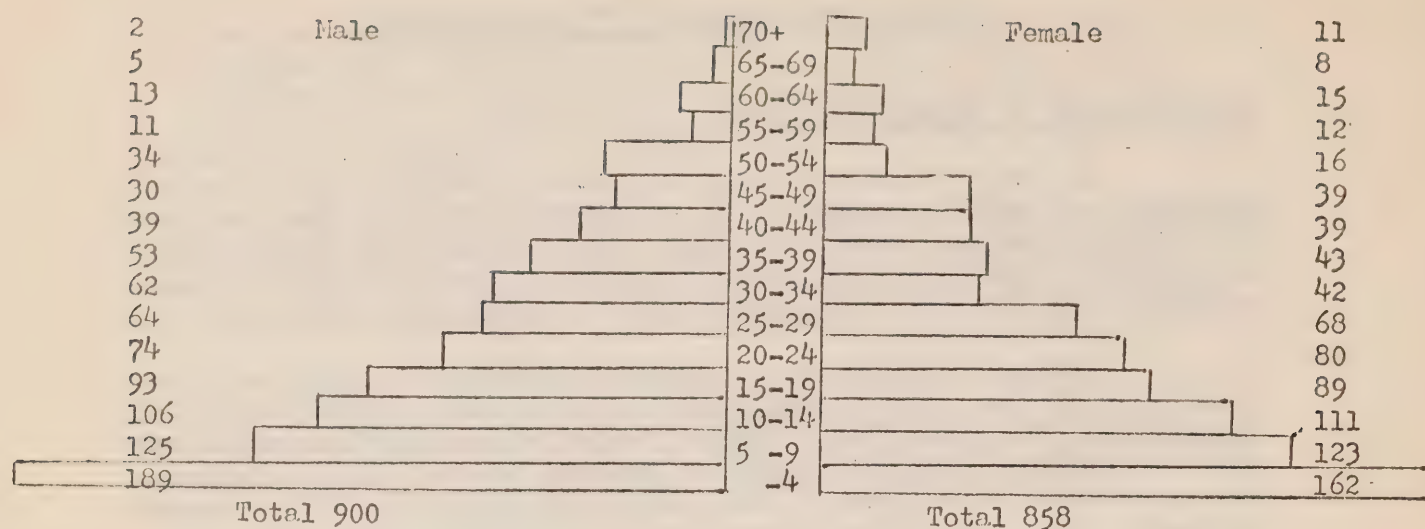


Fig. 8 Keewatin Population Pyramid 1962

Time and space prohibit a detailed examination of the data for each settlement, only the gross figures for the region will be considered. The expansive structure of the Keewatin population is clearly shown in Fig. 8. From table XXXIV it will be seen that out of a population of 1758 there were 816 children under the age of 15 years - about one half of the population.

In a 1962 report to the Council of the Northwest Territories, it was stated that the Eskimo population in Canada increased by 3.8% during 1961-62, and that the birth rate during the same period was 78/1000¹. Using a growth rate of 4% per year over the next ten years*, and assuming that the age structure will remain much the same as at present, certain features of the future population structure can be forecast as shown in Table XXXV

Table XXXV Population Forecast 1967 and 1972

Year	Population	No. of school-age children (approximately 25% of population in each case)	No. males in age groups 15-55	Births per year
1967	2137	534	534	164
1972	2601	650	650	202

¹Report on Health Conditions Northwest Territories 1961, Council of the Northwest Territories, Second Session 1962, Sessional Paper No. 8.

*This growth rate has been suggested as being reasonably sound for planning purposes by Dr. J. Willis of I.N.H.S. (personal communication)

In the present population of approximately 1800 it has been shown that there is theoretical surplus population of about 380. By 1972 this will have increased by nearly 1000.

At present, there are about 40-50 individuals in more or less secure wage employment, and our previous analysis suggested that about 360 males could engage in land-based activities supplemented by casual wage work - a total of about 400 gainfully employed persons. In 1967, this figure will have been exceeded by 134, and in 1972, by about 250.

While it is realized that the theoretical population probably understates the case for the renewable resources, and that the standard of living is unlikely to rise so rapidly over the next few years, that more than 360 men could not engage profitably in land-based activities, these figures foretell a very serious situation. Even if there were no surplus population at present one of considerable magnitude would arise within the next ten years.

Relocation will not do enough to avert the potential economic depression inherent in the population growth. Sometime within the next ten years, it seems highly likely that the renewable resources barrier will have been passed. Unless there is increasing emigration to other areas of opportunity or unless the opportunities for wage work are vastly increased within the region itself, there will be a large number of Eskimos in Keewatin on permanent relief with no hope at all for social and economic advancement.

While it is easy to talk of emigration to other areas of opportunity the fact must be faced that few Eskimos are equipped by education or training to take advantage of opportunities elsewhere. To them, and to their neighbours who prefer to stay in Keewatin, Keewatin will be home for many years to come. The possibility, therefore, of bringing employment to the region justifies serious consideration.

Industry

In this context, industry refers to the production of a standardized article by hired labour working in a factory or workshop. It is not to be confused with cottage or home industry in which the worker is not employed for wages. The idea of establishing industry in Keewatin is not new. Several possibilities have been suggested in the past and some are being examined at present. These which have been proposed, include furniture making, boat building, manufacture of clothing and sleeping bags, making fish nets, toy manufacture, housebuilding, and others. A detailed examination of all these lies outside the purview of this report, but some of the criteria which govern the selection of an industry should be mentioned, and we conclude with an outline of the possibilities for one particular industry.

The criteria may be set out in two broad groups: firstly those which are susceptible to fairly accurate physical or monetary measurement, and secondly, those which cannot be so evaluated, but which are important for their social or educational value.

The first group includes:

- (1) The industry should employ a large number of unskilled workers, at least in its early stages.
- (2) The product should have a high labour content.
- (3) It should require a minimum of elaborate plant.
- (4) It should operate with minimum support from other industry.
- (5) Raw materials should be light weight and easy to ship.
- (6) The product should have a wide market, not only locally, but outside if possible.
- (7) It should be capable of expansion or contraction fairly easily.
- (8) Its subsidy - and subsidy would appear to be inevitable - should be as low as possible.

Among the second group of criteria are the following:

- (1) It should be an industry capable of providing a wide variety of work experiences, including white-collar jobs.
- (2) It should be capable of producing workers skilled in trades which will be required in further northern development.
- (3) By providing employment it caters to one local need, but if it can cater to other local needs so much the better.
- (4) An industry employing local raw materials and skills may not require the participants to adapt to more radical invocations.

The list for each group is by no means complete.

It will be obvious that not all the criteria are mutually conciliatory. An industry based on local skills and materials may not provide the training useful for future northern development. And, of course, a major problem rests in deciding what weight to give the criteria in the second group. The social and educational benefits which would result from any particular industry in Keewatin must be given considerable weight. Those Eskimos who aspire to secure wage work, whether they be adults or older school children, must have an opportunity not only to learn a trade or job, but to apply this learning. They need an atmosphere in which they can become accustomed to work discipline, and they need the work experience which will transform mere training into knowledge and skill of value to the man and his community.

The evaluation of any industry requires a form of unsophisticated Benefit-Cost analysis by a team of specialists whereby the industry would be appraised not only in terms of dollars and cents, but for its value as a social force over a period of years.

An industry which has been suggested, but which has not yet been subjected to a total appraisal of this nature is woodworking.

Woodworking Industry

A woodworking industry supplying a variety of finished products for the region is perhaps the most elaborate industry so far proposed, and, as will be seen, it appears to satisfy many of the criteria set out above. A rough guide to the size of the market for the industry can be obtained from a scrutiny of the population figures given in Table XXXV.

The Eskimos are moving towards housing of their own volition, and by 1972, it is highly probable that there will be few Eskimos not living in houses. According to the 1961 census there were 169 houses in Keewatin (ratio of one house per ten persons). About $\frac{1}{4}$ of these were shacks and constituted poor accommodation.

If for the sake of argument we assume that by 1972 all the Eskimos will be occupying houses at a density of five persons per house, there will be a requirement over the next ten years for approximately 520 houses, about 400 more than at present. This, in itself, may not be enough to tip the scales in favour of importing raw material and building houses in Keewatin for use within the region, but when we consider that every house imported to Keewatin represents the importation of unemployment the number of houses involved becomes more significant.

We may consider the physical needs of education in the same manner. By 1972, there will be approximately 650 children of school age in the region. The present school age population is about 470. Present school enrolment is 542, but this figure includes children from outside the region. Present school capacity is 575. By 1972, therefore, enrolment, including outsiders, will be approximately 720 or more. (Expansion of school accommodation elsewhere would reduce the number of outsiders coming to Chesterfield, but this might be compensated for by increased enrolment at Chesterfield due to the introduction of higher grades there.) The 1972 enrolment will be in excess of present capacity by about 145 pupils, which indicates a requirement for at least six more classrooms. In addition, there will be a requirement for at least six more teachers' houses. Furthermore, the classrooms and teachers' houses will require supporting furniture and equipment, much of which would be made of wood.

The physical needs of some other agencies may increase with the population, depending on their function. I.N.H.S. faced with the predicted incidence of births of over three per week, coupled with the predictable incidence of other illnesses and diseases, may choose to enlarge their hospital accommodation in Keewatin rather than to ship patients out. If this is the case, there will be need for additional hospital building and additional staff quarters.

Other agencies, for example, D.O.T. may not necessarily expand in response to the population growth. The R.C.M.P. may hire more special constables rather than expand their regular force. The building and

maintenance needs of other agencies cannot be determined here without reference to these agencies, but there is obvious scope for exchange of information and plans which would permit a fairly accurate estimate of the total size of the market for various products and work contracts over a period of years.

With regard to house building, there would be an important prerequisite - a change of design and structure of low-cost housing and D.N.A. staff quarters. The present structures, produced by prefabricating plants in the south, would not be suited to the kind of industry envisaged here. That this kind of construction is not necessary is attested to by the buildings of the Hudson's Bay Company, the missions, and the R.C.M.P. throughout the region. All these have been built from imported lumber and with a minimum of prefabricated parts. They are attractive to look at and comfortable to live in.

The industry could be set up at a central location - Rankin would be an obvious choice - and would undertake to:

- (1) maintain a stockpile of lumber and other supplies and material.
- (2) prepare and erect low-cost houses, staff quarters, and other buildings.
- (3) make furniture for schools and domestic use.

While insufficient information is available on the technicalities of such an undertaking, it would appear to satisfy many of the criteria set out on p. 138 . It would afford training in a number of skills, be self-contained apart from supplies, need a minimum of plant, and be relatively easy to expand or contract. Besides catering to the need for wage employment, it would satisfy some of the needs for vocational training and the basic need for shelter. The skills associated with it are useful elsewhere in the north and in Canada generally.

The market would, however, be restricted to the region and the industry would hardly be capable of expansion to supply any outside markets. A fairly high degree of skill would be required right from the start, but this in itself would provide a stimulus for vocational training. In this respect, furniture making would of necessity have to be restricted to simple items initially.

Such an industry could develop into a strong social force. Eventually, it could perhaps be formed into a co-operative enterprise; and experience elsewhere has shown that co-operative house building programmes can be means not only of house building, but of home building and neighbourhood building. The Eskimos could be encouraged to look on the houses, buildings, school furniture, and classrooms, as essential units in their own social progress.

A logical extension of house building and furniture making would be boat building. It would be worthwhile to give some thought in the near future to the design of boats which will be needed several

years from now. The new pattern of living, based in settlements, raises problems in mobility. If renewable resources are to be used to better effect by means of harvesting over wider areas and the development of food processing, and if the establishment of projects in their most favourable areas results in areal specialization, then it is highly likely that there will be need for a small transportation system independent of outside shipping lines. A few boats of say 50 - 70 feet in length operating within the region may be required. Whether these should be imported or made locally is a question calling for expert advice. However, we can anticipate a need for Peterhead type boats of the 35-40 foot size, and others ranging downward in size to whaleboats and canoes. This could form the basis of an ancillary woodworking industry. Whether it should be based in the same settlement as the main industry cannot be determined without further study. It could for example be a means of bolstering the economy in some other settlement, for example Eskimo Point, Whale Cove, or Chesterfield Inlet. On the other hand, to have it located apart from the main industry would destroy part of the advantage of a main stockpile of lumber.

All the phases of a woodworking industry as described above would provide, in addition to social and economic motivation, training in skills acceptable elsewhere in the north and in Canada generally. How many men it might employ cannot be determined without deeper study, but it would probably engage 20-30 including a few clerical workers as well as tradesmen.

Granted that it might be an expensive proposition, or that any industry established in Keewatin might be an expensive proposition, the cost of not establishing an industry of this nature would be expensive in terms not only of cash, but of the despair associated with continued human idleness and stagnation.

Some might balk at the idea of a subsidized industry of this kind, but we should bear in mind that the citizens of Canada pay large amounts of money to keep poor farmers on their land and poor fishermen at sea; they have spent millions helping the Colombo Plan countries subsidize social and economic improvement; and have extended considerable financial help to aid Hungarian refugees. Are the Eskimos to be denied similar consideration?

CONCLUSIONS

1. (i) In the last ten years the population distribution has changed from dispersal in small camps to concentration in seven small settlements.
(ii) These settlements are likely to remain population centres in the near future but not necessarily at their present size.
(iii) Concentration in settlements has led to mal-distribution of population in relation to resources. Relocation of part of the population from over-populated settlements will partially correct the situation. THERE IS NO CASE FOR RE-DISPERSAL CONSONANT WITH THE AIMS OF SOCIAL AND ECONOMIC PROGRESS.
2. (i) The renewable resources of the region are capable of contributing much more than they do to the subsistence and cash income of the people.
(ii) Too much potential human food goes to the dogs.
(iii) The main weaknesses associated with resource exploitation are poor human organization, lack of technical knowledge and application, and lack of capital.
(iv) As the resources are dispersed and fugitive the change from camp living to settlement living requires a new system of socio-economic organization. This new system has not yet evolved and its eventual form cannot yet be determined exactly.
3. (i) A characteristic of the Eskimo economy over the last ten years has been increasing dependence on wage work and social payments as sources of income.
(ii) THE PRESENT WAGE WORK STRUCTURE IS A WEAKNESS IN THAT FEW INDIVIDUALS ARE ENGAGED IN STEADY WAGE WORK, AND VERY FEW HAVE SKILLED JOBS OR JOBS REQUIRING A RELATIVELY HIGH DEGREE OF LITERACY.
(iii) THE NUMBER OF RECIPIENTS OF RELIEF FOR ECONOMIC REASONS IS INORDINATELY HIGH AND OUT OF PROPORTION TO THE SUBSISTENCE AND CASH VALUE OF THE RESOURCES.
4. ASSOCIATED WITH THE CHANGE TO SETTLEMENT LIVING IS AN INCREASE IN THE COST OF LIVING FROM THE POINTS OF VIEW OF BOTH HOME LIFE AND THE EXPLOITATION OF RESOURCES. THERE IS AN IMMEDIATE AND SERIOUS SHORTAGE OF CAPITAL.
5. THIS SHORTAGE OF CAPITAL CAN BE MADE GOOD IN PART BY EXPANSION OF CO-OPERATIVE TRADING ACTIVITY AND CO-OPERATIVE OWNERSHIP OF EQUIPMENT.
6. Handicraft production is almost negligible and capable of much greater development.

7. Tourism is underdeveloped but is in the long run capable of playing an important role in the total economy of the region.
8. THE ESKIMO POPULATION IS STARVED FOR WRITTEN AND BROADCAST INFORMATION ABOUT EVENTS, PROJECTS, RESOURCE USE AND POTENTIALITIES.
9. Eskimo entrepreneurs are almost non-existent in the region.
10. It is estimated that about 360 men (involving about 1200 persons in family groups) can make a living off land-based activities, supplemented by casual wage work, with prospects for economic improvement. A much larger population could be supported in this manner but with a lower standard of living and little prospect for improvement.
11. If the analysis carried out in this report is correct, about 65-80 families have little prospect in the near future of making a living off land-based activities under conditions leading to their economic betterment.
12. Few Eskimos are equipped by education and training to seek and accept permanent job opportunities elsewhere. Under these circumstances there is a strong case for the establishment of industry or industries within the region.
13. THE PRESENT ECONOMIC SYSTEM WILL NOT SUPPORT AN INCREASING POPULATION AT A RISING STANDARD OF LIVING.
14. Unless there is prompt action along a number of lines at the same time the increasing population will lead to an extremely depressed situation in which the Eskimos of Keewatin will exist in social and economic stagnation.

RECOMMENDATIONS

In December 1962, staff from the field and Ottawa attended a conference at Churchill to discuss the Keewatin situation. The conference examined almost every aspect of life in Keewatin and emphasized those problems requiring immediate attention and action. Recommendations made by this conference are shown in list (A) below, and additional recommendations arising out of this Survey Report are shown in list (B).

- (A) Recommendations of the Keewatin Conference (the list is restricted to those recommendations which relate to the content of this Survey. Some of the recommendations were made as a result of Survey findings.)

It was recommended that:

1. More active development of handicraft be undertaken without delay.
 2. The food processing, whaling, and mechanized trapping projects should be continued and expanded.
 3. There should be a thorough investigation of relief policy to discover ways and means of obviating its undesirable aspects.
 4. Education and guidance in co-operative development should be intensified and sustained.
 5. The Department of Agriculture should be asked to investigate the possibilities for horticulture in the region, and, if the findings are favourable, to suggest a development program.
 6. The Canadian Wildlife Service should be asked to:
 - (a) place a high priority on a re-survey of the Keewatin caribou herds in their future land.
 - (b) undertake a range study on Southampton Island.
 7. A comprehensive adult education program be started as soon as possible.
 8. Information and news should be spread through the region by means of radio broadcasts and pamphlets written in Syllabics and English.
 9. A program to exploit the resources of the Daly Bay area be drawn up by the Industrial Division.
- Initial action has been taken on all these recommendations.
10. A seal census be carried out between Eskimo Point and Churchill in the spring of 1963.

(B) Recommendations arising out of this Report

It is recommended that:

1. A relocation scheme be undertaken along the lines suggested on pp. 117-119. The scheme should be planned and undertaken in close consultation with Eskimo councils, while the preparations, planning, and operation should be made the responsibility of one suitably qualified individual.
2. Priority be given to completing assessments of the prospects for various industries in Keewatin. The industries examined should include a wood-working industry of the type proposed on p. 139 of this Report.
3. Efforts to find job opportunities in other areas for suitably qualified Eskimos be intensified.
4. Serious study be made of the rationale of relocating a small group of Eskimo families to southern Canada.
5. Present plans to find a suitable overland route for mechanized transport between Coral Harbour and Duke of York Bay be continued.
6. The results of tanning investigations in the Ungava area be made available to administrators in Keewatin, one of whom should be made responsible for reporting on the economics and mechanics of tanning in two settlements in Keewatin.
7. Two or three experimental cold storage units as described on p. 55 be built as part of a relief works program.
8. Pilot seal netting projects as suggested on p. 50 be undertaken in one or more of the following areas:
 - (i) South-east from Whale Point
 - (ii) Borden Inlet - Fullerton, Bernheimer Bay
 - (iii) Daly Bay
 - (iv) Chesterfield Inlet - Rankin Inlet
 - (v) Corbett Inlet
 - (vi) Pistol Bay
 - (vii) Wilson Bay
 - (viii) Maguse Point
9. An Economic Development Officer be posted to the Keewatin region and to be responsible for:
 - (a) further resource investigations in Baker Lake, Repulse Bay, Duke of York Bay, and Wager Bay.
 - (b) co-ordinating the various resource projects

- (c) examining the economics and mechanics of resource projects, and organizing the continued development of projects initiated by specialists.

This person could act initially as relocation officer. He should have an Eskimo assistant who he would be required to train in the rudimentary principles of game management and modern methods of resource exploitation.

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APPENDIX I - SURVEY MARINE MAMMAL RECORD

Table A Census and Sightings - Harbour Seals (Ranger) and Harp Seals

<u>Date</u>	<u>Conditions</u>	<u>Location and Approximate Distance</u>	<u>Count</u>
August 5	Ice free	Borden Inlet and River 4 miles	10 Hr.

Several of these were seen on rocks on the upper side of rapids, and swimming in quiet waters between sets of rapids along the river. Two were seen in the Inlet, swimming towards the sea, jumping completely out of the water, as porpoises do and they were observed doing this for over 200 yards. Three explanations might be put forward.

1. Although they appeared to know where they were going, they could have been jumping out of the water for no reason.
2. They could have been chased by killer whales and although the water depth here is over 20' at low tide, no indication of this was noted.
3. The Eskimo crew claimed that these being fresh water seals, the vibration of the Peterhead motor, which was running caused an agitation on their ears, causing them to jump out and swim away.

August 6	Seas glassy	N.E. Fullerton	5 miles	24 Hp.
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Four packs of harp seals containing six in each pack were seen and counted. These were chased in an attempt to get one for a sample but this was not accomplished. They were definitely identified as Harp seals, and confirmed by the Eskimo crew.

August 8	Water temp. 42°	64° 8' N. 89° 50' W.	Daly Bay	1 Hr.
August 8	Air temp. 58°			
August 8	Air temp. 58°	64° 10' N. 89° 45' W.	Daly Bay	1 Hr.
August 9		64° 08' N. 89° 48' W.	Daly Bay	3 Hr.
August 20	Seas smooth	63° 35' N. 90° 43' W.	Hamburg Is.	1 Hr.
August 24	Seas rough	63° 46' N. 91° 40' W.	Ranger Seal Bay 1 mile	2 Hr.

These two seals were on rocks in quiet water above the first rapids.

cont'd....

Table A (Cont'd.)

<u>Date</u>	<u>Conditions</u>	<u>Location and Approximate Distance</u>	<u>Count</u>
August 27		Barbour Bay 63°33' N. 92°29' W.	1 Hr.
★ Note: Hr. Harbour Seal (Ranger) - Hp. Harp Seal - Totals -			24 Hp. 19 Hr.

Table B Census and Sightings - Ringed Seals - Bearded Seals

<u>Date</u>	<u>Conditions</u>	<u>Location and Approximate Distance</u>	<u>Est. No.</u>	<u>Count</u>
July 27	Rough seas	Rabkin Inlet - Marble Is. 40 miles		5R 3B
July 31	Rough seas	Southeast from Whale Point 8 miles statute		
August 1	Floating ice	Kumavik Harbour 1 mile	100 seals	1B
August 4	Rough seas	Borden Inlet 2 miles	"	2R 1B
August 4	Rough seas	Southeast Whale Point 5 miles	10 seals	
August 6	Glassy seas	Borden Inlet - Fullerton 20 miles	"	97 seals
(many more seen but not counted in case of duplication)				
August 6	Glassy seas	Daly Bay 5 miles	" 10 seals	1R 1B
August 10	Calm seas	Daly Bay 5 miles	"	30 seals
August 11	Calm seas	Daly Bay 20 miles	"	10 seals
August 13	Calm seas	Depot Is. - Cape Silumint 15 miles	"	10 seals
August 20	Rolling seas	N.E. Hanbury Island 1 mile	"	1R
August 21	Rolling seas	Severn Harbor 1 mile	"	1R
August 22	Rolling seas	Severn Harbor 1 mile	"	1R
August 25	Rolling seas	Barbour Bay 2 miles	"	1R
September 7	Calm seas	Rankin Inlet - Fox Point 8 miles	"	5R
TOTALS			120 seals	17R 6B
				147 seals

NOTE: R - RINGED SEAL

B - BEARDED SEAL

Actual average per statute mile 121/170/1.4 seals.

Estimated average per statute mile 134/290/2.1 seals.

Seals were counted ahead and on both sides of the Peterhead at an estimated 200 yard distance, which is a 400 yard strip. It can be seen that on calm seas the count is much higher.

Table C Census and Sightings - White Whales

<u>Date</u>	<u>Conditions</u>	<u>Location and Approximate Distance</u>	<u>Est.</u>	<u>Count</u>
July 31	Sea rough	South east Whale Point 5 miles		20
August 6	Smooth seas	Mouth of Borden Inlet 2 miles		2
August 7		Daly Bay - 64°01' N - 89°05' W		1
August 8	Smooth seas	Daly Bay - 64°08' N - 89°50' W 2 miles	20	40
August 10	Smooth seas	Daly Bay - 64°04' N - 89°46' W 1 mile		2
				(mother and young)
				(white - grey)
August 13	Calm	Cape Silumiut 3 miles		3
August 13	Calm	63°33' N 90°40' W		2
August 20	Choppy seas	63°33' N 90°40' W Hanbury Is. area		2
August 30	Rough seas	63°26' N 90°30' W		1
September 7	Calm	Rankin Inlet - Fox Point		3
		62°40' N 91°50' W		
		TOTALS	20	76

APPENDIX II DATA FOR CALCULATING FOOD POTENTIAL

Table D Food Values of Selected Northern Wildlife Species

Animal	Calories per lb. of Edible portion	Protein gms. per lb.	Remarks
Seal	828	86.6	Canned Newfoundland seal
Walrus	694	110.7	
Whale meat (fresh)	485	101.1	
Whale muktuk	1551	88.9	Alaska beluga
Caribou	358	67.6	Canned
Goose (raw)	1607	74.4	
Duck (raw)	1055	95.7	
<u>Fish:</u>			
Trout:			
Lake (raw)	760	82.1	
Brook (raw)	462	87.1	
Whitefish (raw)	710	103.9	
Salmon (fresh)	1012	78.9	
Halibut (fresh raw)	640	106.7	
(smoked raw)	1016	94.3	
Cod (fresh raw)	336	74.8	
(dried)	1699	371.0	
(salted raw)	590	131.5	
(smoked raw)	944	65.7	
<u>Other:</u>			
Eggs (fresh)	737	58.1	Blubber:
Brain (all kinds)	567	47.2	Arbitrary value.
Blubber	3000		Probably low. c.f.
			Butter 3248 cals/lb
			Lard 4091 " "
			Margarine-
			3266 " "

Notes: 1 lb. of blubber produces $\frac{1}{2}$ lb. of edible oil
Approximately 50% of a whale's body weight can be utilized as human food.

Source: Table of Food Values Recommended for Use in Canada,
Nutrition Division, Department of National Health and
Welfare, Ottawa, 1951 (2nd. Ed.)

Table E Weights and Products of Marine Mammals

Animal	Average Weight lbs.	Percentage of total body weight represented by				
		Human and/or dog food	Dog food or waste	Blood	Bones	Blubber
1 Ringed seal	76	27	9	5	16	32
2 Ranger seal	120					
3 Bearded seal	465	25	9	5	16	27
4 Walrus	1400	26	30	7	12 (in other food)	
5 Whale	750	meat 17 muktuk 17	23	N.D.	17	25

Note: The average weight of whales varies throughout the Arctic. 750 lbs. is considered to be low for the west coast of Hudson Bay.
Human and/or dog food includes edible viscera such as liver.

Sources: 1,3, MacLaren, 1958.
2 No data available, assumed to correspond to ringed seal.
4 Brack, 1962.
5 Calculated from information obtained from Dr. D. Sergeant, F.R.B. and Mr. E. Hofmann, Industrial Division, Dept. of Northern Affairs.

Table F Calculated Total Food Value of Selected Animals

Animal	Average weight lbs.	Edible weight lbs.	Calories	Rounded total	Protein gms.
Ringed seal	76				
meat		20.5	16,974		1,775
* blubber		12	36,000		
				52,900	
Ranger seal	120				
meat		32.4	26,827		2,806
* blubber		19	57,000		
				83,800	
Bearded seal	465				
meat		116	96,048		10,045
* blubber		67	201,000		
				297,000	

cont'd ...

Table F (Cont'd.)

Animal	Average weight lbs.	Edible weight lbs.	Calories	Rounded total	Protein gms.
Walrus	1400	364	252,616	252,600	40,294
Whale	750				
meat		127.5	61,837		14,025
muktuk		127.5	197,752		11,335
★ blubber		97	291,000	550,589	
Caribou	240	75	26,850	26,800	5,070
Fish	estimate that edible portion is 25% of round weight and calculate according to Table A (700 cal/lb is used in this Report)				

★ Rendered, i.e. edible portion equals about 50% of total blubber weight.

Appendix II cont'd. The Validity of the Theoretical Population

The theoretical population represents the number of people who could obtain their total food requirements from the local resources. This is not a valid representation, but how closely the theoretical figures are in accord with real figures can be partially checked by comparing the theoretical population with the population of ten years ago. In 1953 the population distribution was as follows:

<u>Coastal Settlements</u>		<u>Inland Settlements</u>	
Eskimo Point	257	Baker Lake	413
Tavanni	44	Padlei	102
Chesterfield	264	Nueltin Lake	43
Southampton Island	220		
Repulse Bay	163		
	<u>948</u>		<u>558</u>

Total 1,506

The total theoretical population is 1,415, of whom 1,360 are coastal.

The implications of this comparison cannot be studied in detail here, but a few points should be emphasized.

- (1) Ten years ago the population was less dependent on wage work and more dependent on the resources for subsistence.
- (2) The dog population was probably higher than at present as more trapping was being done.

(1) and (2) taken together suggest that the food potential is, or was, much higher than the above figures would indicate.

- (3) The calculation of food requirements for humans alone, on pp.62-63 of this Report, gives some indication of the food requirements of the 1953 population.

The food sources used in calculating the theoretical population include whales, which were not being exploited by the Eskimos ten years ago, and inland fish, which are considered to have been under-exploited. The food values of the various species of wildlife used in the calculation assume a high rate of recovery of human food - a higher rate than is the case at present or would have been the case ten years ago.

By inference, the amount of wildlife taken for human food and dog food has probably been greater in the past than the wildlife records indicate. Records for whales and walrus are probably more accurate than the records for seals in this respect.

- (4) The theoretical calculations show that a large inland population, such as existed ten years ago (558), would inevitably over-exploit

- the caribou herds. Occasional famines might be expected to be associated with such a situation.
- (5) The theoretical population 'shifts' about 500 from inland areas to the coast. Even if previous seal takes have been underestimated it is doubtful if the coasts could support this additional burden plus dogs. Obviously the dog population would have to be drastically reduced.
 - (6) It is known that the standard of living was much lower ten years ago than it is today, and also that hunger and famine were not uncommon. This consideration reduces the possible degree of underestimation of the previous wildlife harvests.
 - (7) Taking the above factors into account, and bearing in mind that in calculating the theoretical population, certain areas were excluded and that a very low figure was used for caribou takes, the theoretical population is probably a close, but conservative estimate.
 - (8) The estimation of the population status for each settlement in Part III Section 6. of this Report, takes into account various factors which generally reduce the size of the theoretical population for each settlement. The 'desirable' population derived for each settlement is, therefore, probably an under-estimate and probably underestimates the subsistence potential of the resources.

(Area administrators - and others - might be interested in studying this matter more fully and commenting on the validity of the theoretical population with respect to particular settlements. Such comments would be very welcome.)

APPENDIX III TABLE OF COMMERCIAL TRANSPORTATION RATES

	<u>Out of</u>	<u>Sea</u>	<u>Air</u>
<u>Baker Lake</u>	Churchill	freight \$ 35.00 ton (Gov)	passenger \$105.00 (S)
	Montreal	freight \$ 87.50 " "	passenger \$197.60 (R)
			freight \$.51 $\frac{1}{2}$ ¢ Lb.
<u>Chester. Inlet</u>	Churchill	freight \$ 35.00 " "	passenger \$ 86.00 (S)
	Montreal	freight \$ 87.50 " "	passenger
			freight \$.34 Lb.
<u>Rankin Inlet</u>	Churchill	freight \$ 32.00 " (Com)	passenger \$ 56.00 (S)
	Montreal	freight \$ 47.50 " "	passenger \$106.40 (R)
			freight \$.30 Lb.
<u>Whale Cove</u>	Churchill	freight \$ 32.00 " "	passenger \$ 68.00 (S)
	Montreal	freight \$ 52.50 " "	passenger \$124.20 (R)
			freight \$.34 Lb.
<u>Eskimo Point</u>	Churchill	freight \$ 35.00 " (Gov)	passenger \$ 40.75 (S)
	Montreal	freight \$ 87.50 " "	passenger \$ 77.40 (R)
			freight \$.16 Lb.

All air rates are from Churchill.

Government shipping is more expensive than charter rates.

APPENDIX IV

Table G Statistics on the Mainland Barren-Ground Population

<u>1959-60</u>		
Total population May 30, 1959		210,000
Annual increment at May 30, 1960 (based on 80,000 calves born June, 1959 and 50% first year mortality)	40,000	
Annual decrement due to:		
(i) human utilization July 1, 1959 June 30, 1960 for N.W.T., Manitoba and Saskatchewan	34,800	
(ii) natural mortality of adults, including predation at 5%	<u>10,500</u>	
TOTAL DECREMENT	<u>45,300</u>	
<u>1960-61</u>		
Total population May 30, 1960 = 210,000 - 5,300 =		204,700
Annual increment at May 30, 1961 (based on 70,000 calves born June, 1960 and 50% first year mortality)	35,000	
Annual decrement due to:		
(i) human utilization July 1, 1960 June 30, 1961 for N.W.T., Manitoba and Saskatchewan	29,000	
(ii) natural mortality of adults, including predation at 5%	<u>10,200</u>	
TOTAL DECREMENT	<u>39,200</u>	
Balance (35,000 - 39,200) = 4,200 (deficit)		
<u>1961-62</u>		
Total Population May 30, 1961 = 204,700 - 4,200 =		200,500

On the basis of the above calculations, there can be no doubt that the mainland barren-ground caribou population is continuing to decline. It should be noted that this decline occurred during the last two years, at a rate of about 2.5% of the total population, in spite of the fact that calf-crops and calf survival were high during those years.

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